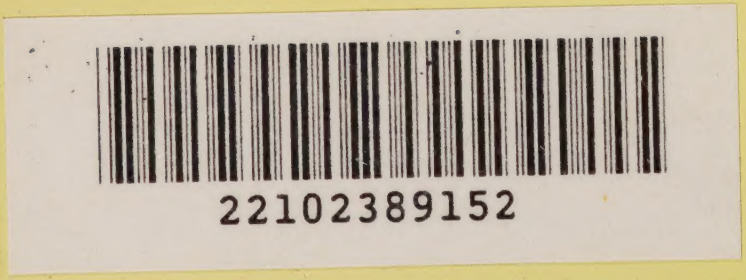
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# TRANSACTIONS

OF

# THE MEDICAL SOCIETY

OF

# LONDON.

VOLUME THE TWENTIETH.

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GEORGE R. TURNER, F.R.C.S.,

AND

ROBERT MAGUIRE, M.D., F.R.C.P.

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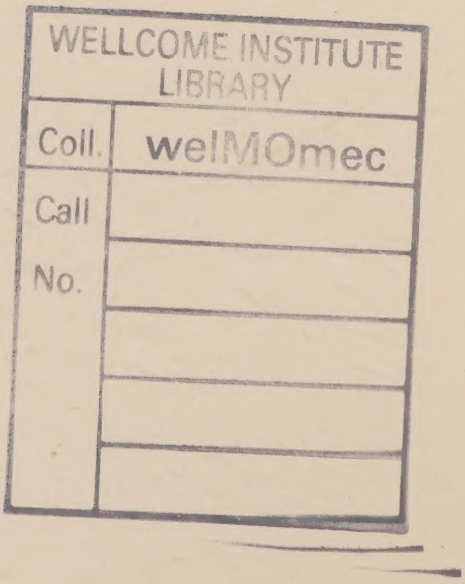
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1819. Thomas J. Pettigrew, F.R.S.
1820. Thomas Hancock, M.D.
1821. Thomas Callaway.
1822. James Copland, M.D.
1823. Edward Grainger.
1824. Gordon Smith, M.D.
1825. Eusebius Arthur Lloyd.
1826. John Haslam, M.D.
1827. William Kingdom.
1828. John Burne, M.D.
1829. William Greville Jones.
1830. Leonard Stewart, M.D.
1831. Montague Gossett.
1832. John Whiting, M.D.
1833. Frederick Salmon.
1834. William Shearman, M.D.
1835. Walter Cooper Dendy.
1836. William F. Blicke, M.D.
1837. Edward Headland.
1838. Theophilus Thompson, M.D., F.R.S.
1839. George Pilcher.
1840. James Risdon Bennett, M.D.
1841. Wm. Dingle Chowne, M.D.
1842. Henry Hancock.
1843. Leonard Stewart, M.D.
1844. Thomas Bell, F.R.S.
1845. Marshall Hall, M.D.
1846. John Bishop, F.R.S.
1847. Golding Bird, M.D., F.R.S.
1848. Francis Hird.
1849. William Hughes Willshire, M.D.
1850. Francis Hird.
1851. Richard Rowland.
1852. Edwin Canton.
1853. John Snow, M.D.
1854. Henry Smith.
1855. James Fernandez Clarke.
1856. Benj. Ward Richardson, M.D., F.R.S.
1857. William Adams.
1858. Alfred Baring Garrod, M.D.
1859. Charles Henry Felix Routh, M.D.

1860. John Gay.
1861. Arthur Leared, M.D.
1862. Victor de Méric.
1863. Samuel Osborne Habershon, M.D.
1864. John Louis William Thudichum, M.D.
1865. Robert Greenhalgh, M.D.
1866. Thomas Christopher Weeden Cooke.
1867. Frederick William Headland, M.D.
1868. William Frederick Teevan.
1869. George Duncan Gibb, M.D.
1870. Francis Mason.
1871. William Cholmeley, M.D.
1872. Frederick James Gant.
1873. John Cockle, M.D.
1874. Robert Brudenell Carter.
1875. George Buchanan, M.D.
1876. Erasmus Wilson, F.R.S.
1877. John Hughlings Jackson, M.D., F.R.S.
1878. Alfred Carpenter, M.D.
1879. Walter John Coulson.
1880. William Henry Broadbent, M.D.
1881. Arthur Edward Durham.
1882. Edmund Symes Thompson, M.D.
1883. Edward Lund.
1884. Charles Theodore Williams, M.D.
1885. George Murray Humphry, M.D., F.R.S.
1886. Richard Douglas Powell, M.D.
1887. Sir William MacCormac.
1888. Sir Joseph Fayrer, K.C.S.I., M.D., F.R.S.
1889. Jonathan Hutchinson, F.R.S.
1890. Arthur Ernest Sansom, M.D.
1891. Sir Joseph Lister, Bart., F.R.S.
1892. Sir James Crichton-Browne, M.D., F.R.S.
1893. W. Mitchell Banks.
1894. William M. Ord, M.D.
1895. A. Pearce Gould.
1896. William H. Allchin, M.D.
1897. Edmund Owen.

## THE FOTHERGILLIAN GOLD MEDALLISTS.

1787. William Falconer, M.D.
1790. Robert Willan, M.D.
1791. John Coakley Lettsom, M.D.
1795. John Mason Good.
1801. Francis Bouttatz, M.D.
1803. Edward Jenner, M.D.
1824. Robert W. Bampfield.
1828. John George Parry.
1831. William Augustus Guy.
1834. William James Clement.
1835. George Moore.
1836. Thomas Egerton Bryant.
1838. George Pilcher.
1840. Samuel Osborn.
1842. James Risdon Bennett, M.D.
1843. John Weaver Lever, M.D.
1844. Henry Pratt Robarts.
1845. Walter Cooper Dendy.
1846. Robert Mortimer Glover, M.D.
1847. Silas Stedman.
1849. John Milligan.
1850. Richard Payne Cotton, M.D.
1851. Richard Hodges.
1852. Frederick William Headland.
1853. Alfred William Poland.
1854. Benjamin Ward Richardson, M.D.
1856. William Burke Ryan.
1857. Edwin Canton.
1858. Thomas Herbert Barker, M.D.
1859. Alderman Thomas Houghton Waters.
1868. John Clay.
1870. Thos. Smith Clouston, M.D.
1872. Edwards Crisp, M.D.
1873. John Kent Spender, M.D.
1877. Peter Murray Braidwood, M.D.
1878. John Milner Fothergill, M.D.
1882. Thomas Michael Dolan, M.D.
1883. Norman Porritt.
1886. John Strahan.
1888. Hobart Amory Hare, M.D., U.S.A.
1893.* William Richard Gowers, M.D., F.R.S.
1896. Victor Horsley, F.R.S.

* *First Triennial Award under the Charity Commissioners' New Scheme,* vide *Trans., vol. xiv, p. xi.*

# THE HONORARY FELLOWS.

1893. Barnes, Robert, M.D., Lingwood, Liss, Hants, LL, C.

1896. Berger, Paul, Professor of Clinical Surgery in the Faculty of Medicine, Member of the Academy of Medicine, Surgeon to "l'hôpital de la Pitié," 16, Rue de Bourgogne, Paris.

1897. Bergmann, Prof. E. von, M.D., Berlin.

1881. Billings, John S., M.D., Washington, Surgeon to the United States Army; Librarian to the Surgeon-General's Library, Washington.

1894. Catrin, Louis, M.D., Médecin-major de première classe, Professeur agrégé à l'Ecole du Val-de-Grace, Paris.

1873. Chauveau, A., Professor of Physiology at the Medical School of Lyons.

1890. Crudeli, Tommasi, M.D., Rome.

1881. Da Costa, J. M., M.D., Professor of Medicine in the Jeffreson Medical College, 1700, Walnut-street, Philadelphia.

1881. Emmet, Thomas Addis, M.D., 89, Madison-avenue, Surgeon to the Woman's Hospital of the State of New York.

1886. Gairdner, William Tennant, M.D., LL.D. Edin., F.R.C.P. Edin., F.R.S., 225, St. Vincent-street, Glasgow.

1894. Gant, Frederick James, F.R.C.S., 16, Connaught-square, W., Consulting Surgeon to the Royal Free Hospital. P, VP 2, LL, O, C 3.

1897. Guyon, Felix, M.D., Professor in the Faculty of Medicine, Member of the Institute and of the Academy of Medicine, Paris.

1881. Halla, Joseph, Professor of Medicine in the University of Prague.

1869. Hare, Charles John, M.D., Berkeley House, Manchester-square, W., Consulting Physician to University College Hospital, and late Professor of Clinical Medicine in University College. P, VP 2. C 8, LL. *Trustee.*

1897. Hingston, Sir W. Hales, M.D., Montreal.

1875. Jenner, Sir William, Bart., K.C.B., D.C.L., LL.D., M.D., F.R.S., Greenwood, Durley, Hants, Physician-in-Ordinary to H.M. the Queen and to H.R.H. the Prince of Wales; late President of the Royal College of Physicians; Emeritus Professor of Clinical Medicine in University College, London; Consulting Physician to University College Hospital.

1890. Kocher, Theodor, Professor, Berne.

1883. Le Roy de Mericourt, A., M.D., Paris.

1890. Lombard, Henri-Clermond, M.D., Geneva.

1878. Mitchell, S. Weir, M.D., Walnut-street, Philadelphia.
1881. Nussbaum, John Nepomuk Ritter von, M.D., Professor of Surgery in the University of Munich.
1875. Ollier, Professor, Lyons.
1873. Paget, Sir James, Bart., D.C.L., LL.D., F.R.S., 5, Park-square, W., Serjeant-Surgeon to H.M. the Queen; Surgeon to H.R.H. the Prince of Wales; Consulting Surgeon to St. Bartholomew's Hospital.
1897. Roddick, T. G., M.D., 80, Union-avenue, Montreal.
1877. Sanné, A., 12, Place de Laborde, Paris.
1881. Tarnier, Stephanie, M.D., Professor of Obstetric Medicine in the School of Medicine, Paris.
1873. Virchow, Rudolph, M.D., Professor of Pathological Anatomy in the University of Berlin.

# CORRESPONDING FELLOWS.

1882. Badaloni, Giuseppe, M.D., Bologna, Italy.
1856. Baker, Albert, M.D., Clarence House, Exmouth.
1855. Beardsley, Amos, Bay Villa, Grange, Lancashire.
1850. Beneke, F. W., M.D., New York.
1850. Böhm, Professor, M.D., Vienna.
Bottini, Giuseppe, M.D., Milan.
1855. Coates, Charles, M.D., F.R.C.P., 10, Circus, Bath, Consulting Physician to the Bath Royal United Hospital. c 3.
1850. Cox, William Isidore, Hawkesbury-Upton, Gloucestershire. c.
1876. De Muynck, J., M.D., Ghent.
1836. Ecstein, Sigismund, M.D., Vienna.
Eylandt, Johann Emil, M.D., Curland, Russia.
1853. Fallot, R., M.D., St. Laurent d'Aigonze, Montpelier, France.
1889. Frank, Philip, M.D., F.R.C.P., Cannes, France.
1876. Griffith, Richard Glyn, Allahabad, India.
1896. Hamilton, Allan McLane, M.D., 44, East Twenty-ninth Street, New York.
1864. Hasenfeld, Emmanuel, M.D., Pesth.
Hyman, —, M.D., Antwerp.
1875. Jones, Philip Sydney, M.D., F.R.C.S., Examiner in Medicine in the University of Sydney, Australia, Hon. Consulting Surgeon to the Sydney Infirmary.
1861. Journez, Henri, M.D., 43, Rue de la Charité, Bruxelles, Belgique.
1851. Kölliker, Albert, M.D., Professor of Anatomy and Physiology at the University of Wurzburg.
1876. Leighton, Walter H., M.D., Lowell, Massachusetts, U.S.A.
1851. Negri, Gaetano, M.D. Pisa.
1865. Peruzzi, Domenico, M.D., 22, Via Mazzini, Bologna.
1882. Restrepo, Alessando Eduardo, M.D., Medillin, Columbia, U.S.A.
1886. Rocha, A., M.D., Coimbra, Beira, Portugal.
1860. Roussel, M.D., Dean of the Faculty of Medicine, Montpelier.
Scharlan, Gus. W., M.D., Stettin, Prussia.
1876. Schmitz, Richard, M.D., Neuenahr.

874. Schutgowsky, J., St. Petersburg.

851. Stockwell, Thomas Goldesbrough, F.R.C.S., 6, Circus, Bath, Surgeon to the Bath Royal United Hospital.

Williams, Charles, F.R.C.S. Edin., 48, Prince of Wales-road, Norwich; Senior Surgeon to the Norfolk and Norwich Hospital.

# THE FELLOWS

OF

# THE MEDICAL SOCIETY OF LONDON.

(Corrected to 1st November, 1897.)

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Explanation of Abbreviations.

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|---|---|
| P.—President. | FM.—Fothergillian Gold Medallist. |
| VP.—Vice-President. | SM.—Silver Medallist. |
| T.—Treasurer. | O.—Orator. |
| L.—Librarian. | CFC.—Chairman, House and Finance Committee. |
| S.—Secretary. | §—Sec. for Foreign Correspondence. |
| C.—Councillor. | *—Life Members. |
| LL.—Lettsomian Lecturer. | Tr.—Trustee. |

The number prefixed signifies the date of election. The figures appended indicate the number of Sessions served, and refer to past appointments ONLY.

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1890. Abbot-Anderson, William Maurice, M.B., 10, Old Cavendish-street, Cavendish-square, W.
1888. Abbott, Charles Edward, M.R.C.S., Shrapnels, Taunton.
1891. Abraham, Phineas S., M.D., 2, Henrietta-street, Cavendish-square, W.
1896. Abrahams, Bertram Lewis, M.B., 14, Welbeck-street, W.
1894. Achard, Alexander Louis, M.D., 9, Blandford-street, Portman-square, W.
1890. Ackland, Robert Craig, M.R.C.S., 13, Savile-row, W.
1883. Acland, Theodore Dyke, M.D., 74, Brook-street, Grosvenor-square, W. c. *Councillor.*
1884. Adam, James, M.D., Malling-place, West Malling, Kent.
1889. Adams, James, M.D., 4, Chiswick-place, Eastbourne.
1878. Adams, Josiah Oake, M.D., Brook House, Upper Clapton, E.
1852. *Adams, William, F.R.C.S., 7, Loudoun-road, St. John's-wood, N.W. p, c 8, o, vp 3, ll.
1878. *Allchin, William Henry, M.D., F.R.S.E., 5, Chandos-street, Cavendish-square, W. vp 2, o., *Hon. Librarian.*
1873. Allen, Henry Marcus, F.R.C.P. Edin., 20, Regency-square, Brighton.
1873. Allfrey, Charles Henry, M.D., Plas Newydd, St. Leonards-on-Sea.

1883. Allingham, Herbert W., F.R.C.S., 25, Grosvenor-street, W. c 3.
1872. *Allingham, William, F.R.C.S., 25, Grosvenor-street, W. c.
1894. Alston, William Evelyn, M.B., Wheathampstead, Herts.
1860. Althaus, Julius, M.D., 26, Queen Anne-street, W. c 5, § 3.
1885. Anderson, John, M.D., C.I.E., 9, Harley-street, W. c. *Councillor.*
1889. Anderson, William, F.R.C.S., 2, Harley-street, W. c.
1888. Andrewes, Frederick William, M.B., Highwood, Hampstead-lane, Highgate, N.
1869. Armitage, Samuel Harris Tatham, M.D., 39, Grosvenor-street, W.
1894. Armstrong, William, M.R.C.S., J.P., Thorncliffe, Buxton.
1894. Ashe, William Percy, M.D., 23, Cadogan-gardens, S.W.
1873. Atkinson, Edward, M.R.C.S., 93, Albion-street, Leeds.
1892. Ayres, Charles James, M.D., 55a, Welbeck-street, W.

1873. Bagshawe, Frederic, M.D., 35, Warrior-square, St. Leonards-on-Sea. c.
1871. Bailey, George Hewlett, M.R.C.S., 43, Queen Anne-street, W.
1892. Bailey, Henry Frederick, M.R.C.S., The Hollies, Lee-terrace, Lee, S.E. c 2.
1894. Bailey, Robert Cozens, M.S., 21, Welbeck-street, W.
1891. Baily, Percy J., M.B., County Asylum, Hanwell, W.
1876. *Baker, Henry Francis, F.R.C.S. Edin., 2, Mandeville-place, Manchester-square, W. c.
1890. Baker, William Henry, M.R.C.S., 152, Westbourne-grove, W.
1891. Ball, James Barry, M.D., 12, Upper Wimpole-street, W.
1881. Ballance, Charles Alfred, M.S., 106, Harley-street, W. s 2, c 3.
1884. Banks, W. Mitchell, F.R.C.S., 28, Rodney-street, Liverpool. o, c.
1859. Barnes, John Wickham, F.R.C.S., High Wickham, Walton-on-Naze. s 2, vp, c 3.
1883. *Barnes, Robert, M.D., *Honorary Fellow* (*q. v.*).
1895. Barratt, John Oglethorpe Wakelin, M.D., 26, Upper Wimpole-street, W.
1874. Barrett, Howard, M.R.C.S., 49, Gordon-square, W.C. c 3.
1896. Barrett, Walter Russell, M.R.C.S., 6, Chandos-street, Cavendish-square, W.
1884. Barrow, Albert Boyce, F.R.C.S., 37, Wimpole-street, W. c.
1886. Barwell, Richard, F.R.C.S., 55, Wimpole-street, W.
1884. Bateman, Frederick Augustus Newton, M.R.C.S., 4, Charles-street, St. James's-street, S.W.
1886. Batterham, John Williams, M.B., Bank House, Grand-parade, St. Leonards-on-Sea.
1888. Battle, William Henry, F.R.C.S., 2, Mansfield-street, W. c. *Hon. Secretary.*
1896. Bayliss, Richard Arthur, M.R.C.S., Royal Mineral Water Hospital, Bath.
1882. Beach, Fletcher, M.B., Winchester House, Kingston-hill, Surrey, and 64, Welbeck-street, W. c.

1887. Beale, Edwin Clifford, M.B., 23, Upper Berkeley-street, W. *Councillor.*

1891. Beale, Peyton T. B., F.R.C.S., 61, Grosvenor-street, W.

1880. Beevor, Charles Edward, M.D., 33, Harley-street, W. s 2, c. *Trustee.*

1889. Beevor, Sir Hugh Reeve, Bart., M.D., 17, Wimpole-street, W.

1887. Benham, Frederick Lucas, M.D., 93, Elizabeth-street, Eaton-square, S.W. c. *Councillor.*

1881. Bennet, Robert Ottiwell-Gifford, M.D., Tankerville House, Park-place, Buxton.

1883. Bennett, William Henry, F.R.C.S., 1, Chesterfield-street, Mayfair, W. c.

1896. Berkeley, Comyns, M.B., 53, Wimpole-street, W.

1887. Berry, James, F.R.C.S., 60, Welbeck-street, W.

1873. Beveridge, James Spowart, M.R.C.P. Edin.

1890. Bidwell, Leonard Arthur, F.R.C.S., 59, Wimpole-street, W.

1868. Bird, George, M.D., 6, Windmill-hill, Hampstead, N.W.

1888. Bird, Matthew Mitchell, M.D., St. Mary's Hospital, W.

1850. *Birkett, John, F.R.C.S., 1, Sussex-gardens, W. vp, c 6.

1895. Bishop, Edward Stanmore, F.R.C.S., 316, Oxford-road, Manchester.

1883. Biss, Cecil Yates, M.D., 135, Harley-street, W.

1889. Bisshopp, Francis Robert Bryant, M.B., Belvedere, Lonsdale-gardens, Tunbridge Wells.

1886. *Black, William Gall, F.R.C.S., 2, George-square, Edinburgh.

1881. Blaker, Walter Campbell, Bognor, Sussex.

1888. Blanc, Leon, M.D., Aix les Bains, France.

1871. *Bloxam, John Astley, F.R.C.S., 75, Grosvenor-street, W. vp 2, s 2, c 3.

1867. Bond, Thomas, F.R.C.S., 7, The Sanctuary, Westminster, S.W. c.

1879. Bott, Henry, M.R.C.S., Brentford, Middlesex.

1886. Bourns, Newcome Whitelaw, M.D., 78, Redcliffe-gardens, S.W.

1886. Boustead, Robinson, M.D., Surgeon Lieutenant-Colonel, c/o Messrs. King & Co., 45, Pall Mall, S.W.

1895. Bower, David, M.D., Springfield House, Bedford.

1889. Bowles, Robert Leamon, M.D., 16, Upper Brook-street, W. c. *Councillor.*

1895. Boyd, Stanley, F.R.C.S., 134, Harley-street, W.

1896. Bradley, James Edward Campbell, M.B., Greville House, Raynes Park, Wimbledon.

1883. Bradshaw, James Dixon, M.B., Savile Club, Piccadilly.

1868. Braidwood, Peter Murray, M.D., Walton-street, Aylesbury. f.m., 1877.

1869. Braine, Francis Woodhouse, F.R.C.S., 67, Wimpole-street, W. vp 2, s 2, c 3, sm.

1889. Braine, C. Carter, F.R.C.S., 67, Wimpole-street, W.

1876. Brewer, Alexander Hampton, M.R.C.S, 136, Richmond-road, Dalston, N.E.

1896. Bridges, Ernest C., M.B., 4, Russell Mansions, W.C.
1873. Bridgwater, Thomas, M.B., LL.D., J.P., Harrow, Middlesex.
1893. Broadbent, John Francis Harpin, M.B., 35, Seymour-street, W.
1862. Broadbent, Sir William Henry, Bart., M.D., F.R.S., 84, Brook-street, W. P, VP, O, LL, C 4.
1890. Brook, William Frederick, F.R.C.S., Langlands House, Swansea.
1878. Brown, Andrew, M.D., Elton Villa, 1, Bartholomew-road, Kentish Town, N.W.
1889. Browne, George Buckston, M.R.C.S., 80, Wimpole-street, W. C 2.
1873. Browne, Lennox, F.R.C.S. Edin., 15, Mansfield-street, Portland-place, W.
1887. Bruce, John Mitchell, M.D., 23, Harley-street, W. C 2.
1873. Brunjes, Martin, M.R.C.S., 39, Blenheim-gardens, Willesden-green, N.W.
1862. Brunton, John, M.D., 16, Endsleigh-street, Tavistock-square, W.C. VP, C 2.
1874. *Brunton, Thomas Lauder, M.D., F.R.S., 10, Stratford-place, W. LL, VP, C 4, SM.
1850. *Bryant, Thomas, F.R.C.S., 65, Grosvenor-street, W. P, VP, LL, S 2, C 4. *Trustee.*
1897. Bunch, John Le Mare, M.D., 6, Gordon-place, Gordon-square, W.C.
1885. *Bunny, J. Brice, M.R.C.S., Warre House, Bishops Lydeard, Taunton.
1886. Butler-Smythe, Albert Charles, F.R.C.S., 76, Brook-street, W.
1872. Byas, Edward Hegley, M.R.C.S., 10, Cambridge-gate, Regent's Park, N.W.

1886. Cahill, John, M.D., 12, Seville-street, Lowndes-square, Hyde Park, S.W. C 3.
1892. Caldwell, Robert, F.R.C.S., Surgeon-Captain, care of Messrs. Holt and Co., 17, Whitehall-place, S.W.
1893. Caley, Henry Albert, M.D., 24, Upper Berkeley-street, W.
1891. Calvert, James, M.D., 36, Queen Anne-street, W.
1888. Campbell, Charles M., M.D., *Travelling.*
1892. Cargill, Lionel Vernon, F.R.C.S., 15, Stratford-place, W.
1892. Carless, Albert, F.R.C.S., 10, Welbeck-street, W.
1882. Carpenter, Arthur Bristowe, M.B., Wykeham House, Bedford Park, Croydon.
1889. Carr, John Walter, M.D., 19, Cavendish-place, W.
1897. Carré, L. J. Gerard, M.D., The Uganda Railway, British East Africa.
1871. Carter, Robert Brudenell, F.R.C.S., 31, Harley-street, W. P, VP, O, LL, C 4.
1889. Cartwright, Alexander, M.R.C.S., 32, Old Burlington-street, W.
1876. Cartwright, S. Hamilton, *Travelling.*
1876. *Cathcart, Samuel, M.R.C.P. Edin., Prudhoe House, High-road, Tottenham, E.
1889. Cautley, Edmund, M.D., 15, Upper Brook-street, W.

1896. Chapman, Charles William, M.D., 21, Weymouth-street, W.
1885. Chasseaud, William, M.D., Smyrna, Asia Minor.
1889. Cheyne, Watson, F.R.C.S., F.R.S., 75, Harley-street, W. ll, c.
1877. *Chisholm, Edwin, M.D., Sydney, New South Wales.
1895. Christmas, Robert William Samuel, M.R.C.S., Wheatley, Coventry-park, Streatham, S.W.
1871. Churton, Thomas, M.D., 35, Park-square, Leeds. c.
1875. Clark, Andrew, F.R.C.S., 71, Harley-street, W. c.
1883. Clarke, William Bruce, F.R.C.S., 51, Harley-street, W. c.
1894. Clinch, Thomas Aldous, M.B., 4, Gower-street, W.C.
1879. *Clutton, Henry Hugh, F.R.C.S., 2, Portland-place, W. vp 2, c 3.
1894. Cochrane, James Mackeand, M.D., 10, Weymouth-street, W.
1849. *Cockle, John, M.D., The Lodge, West Molesey, Surrey. p, vp, o, l 3, c 3, sm.
1893. Cole, Robert Henry, M.D., Moorcroft, Hillingdon, Uxbridge.
1887. Collier, William, M.D., St. Mary's Entry, Oxford. c.
1892. Colman, Walter S., M.D., 22, Wimpole-street, W.
1871. Cook, John, M.D., 1, Nottingham-terrace, Regent's Park, N.W.
1862. Cooper, Alfred, F.R.C.S., 9, Henrietta-street, Cavendish-square, W. c 3, vp.
1888. Cooper, Arthur, M.R.C.S., 20, Old Burlington-street, W.
1894. Cooper, Peter, M.R.C.S., 35, Shooters-hill-road, Blackheath, S.E.
1894. Corbould, Victor A. L. E., M.D., 43, Victoria-road, Kensington, W.
1872. Corfield, William Henry, M.D., 19, Savile-row, W. c.
1892. Cotterell, Edward, F.R.C.S., 5, West Halkin-street, Belgrave-square, S.W.
1891. Coumbe, John Batten, F.R.C.S., Landown, Stroud, Gloucestershire.
1879. Coupland, Sidney, M.D., 16, Queen Anne-street, W. vp 2, c 3.
1889. Courtney, Guy Budd, M.B., 28, Augusta-road, Ramsgate.
1874. Craigie, John Hamilton, F.R.C.S. Edin., 13, Savile-row, W. c.
1873. Craven, Sir Robert Martin, F.R.C.S., J.P., 14, Albion-street, Hull.
1889. Crawford, James, M.D., Grosvenor-mansions, 80, Victoria-street, S.W.
1871. Crichton-Browne, Sir James, M.D., F.R.S., 61, Carlisle-mansions, S.W. p, o, c 2.
1881. Cripps, William Harrison, F.R.C.S., 2, Stratford-place, W. c 2.
1880. Critchett, George Anderson, F.R.C.S. Edin., 21, Harley-street, W.
1880. Crocker, Henry Radcliffe, M.D., 121, Harley-street. c 3.
1881. Cross, Francis Richardson, F.R.C.S., Worcester House, Clifton, Bristol.
1890. Cullingworth, Charles James, M.D., 14, Manchester-square, W. c 3.
1874. Cumberbatch, Alphonso Elkin, F.R.C.S., 80, Portland-place, W. c 2.

1892. Da Costa, Francis Xavier, F.R.C.S., Bombay, India.
1897. Dakin, William Radford, M.D., 18, Grosvenor-street, W.
1894. Dalby, John Lyttleton, M.R.C.S., 4, Freeland-road, Ealing, W.

1871. Dalby, Sir William Bartlett, F.R.C.S., 18, Savile-row, W. P, C 2.
1881. Dallaway, Dennis Joseph William, L.R.C.P. Edin., 6, Belgrave-terrace, Torquay.
1885. Davies-Colley, John Neville Colley, F.R.C.S., 36, Harley-street, W. C 3.
1890. Davis, Henry, M.R.C.S., 60, Queen Anne-street, W.
1889. *Davison, James, M.D., "Streate Place," Bath-road, Bournemouth.
1897. Davison, Rashell, M.D., Vernham, New Malden, Surrey.
1880. Davson, Smith Houston, M.D., Campden Villa, 203, Maida-vale, W. C 3.
1868. *Davy, Richard, F.R.C.S., F.R.S.E., Burstone House, Bow, North Devon. VP, S 2, SM, § 2.
1876. Dawes, Richard St. Mark, M.R.C.S., Gawler, South Australia.
1880. Dawson, Yelverton, M.D., Heathland, Southborne-on-Sea, Christchurch, Hants.
1894. Dean, Henry Percy, M.S., 84, Wimpole-street, W.
1883. Dent, Clinton Thomas, F.R.C.S., 61, Brook-street, Grosvenor-square, W. C 3.
1897. Des Vœux, Harold A., M.D., 4, Ashley-gardens, Victoria-street, S.W.
1891. Diver, Ebenezer, M.D., Yately House, Kenley, Surrey.
1893. Dockrell, Morgan, M.D., 9, Cavendish-square, W.
1885. Dodd, Henry Work, F.R.C.S., 136, Harley-street, W.
1882. Dolan, Thomas Michael, M.D., Horton House, Halifax. FM 1882.
1881. Doran, Alban Henry Griffiths, F.R.C.S., 9, Granville-place, W. C 3. *Hon. Sec. Foreign Correspondence.*
1890. Douglas, William, M.D.
1871. Dowse, Thomas Stretch, M.D., 14, Welbeck-street, W. § 3, C 3.
1897. *Drage, Lovell, M.D., Hatfield, Herts.
1877. Drew, John Henry, M.R.C.S., 38, Eastbourne-terrace, Hyde Park, W. C 6.
1886. Duckworth, Sir Dyce, M.D., 11, Grafton-street, Piccadilly, W. C.
1848. *Duncan, James, M.B., 8, Henrietta-street, Covent Garden, W.C.
1884. Duncan, William, M.D., 6, Harley-street, W.
1884. Durham, Frederick, F.R.C.S., 82, Brook-street, W.

1895. Ealand, Hugh Fawsit, L.R.C.P. Edin., The Moat, Puckeridge, Herts.
1896. Earle, Walter George, M.R.C.S., 44, Upper Grosvenor-road, Tunbridge Wells.
1891. Eastes, Thomas, M.D., 3, Shakespeare-terrace, Folkestone.
1893. Eccles, Arthur Symons, M.B., 23, Hertford-street, Mayfair, W.
1895. Eccles, William McAdam, M.S., 124, Harley-street, W.
1892. Eddowes, Alfred, M.D., 25, Old Burlington-street, W.
1860. Edmunds, James, M.D., 28, Dover-street, W.
1880. Edwards, Frederick Swinford, F.R.C.S., 55, Harley-street, W. C 3.
1868. Elliott, George Frederick, M.D., 1, Albion-street, Hull.
1882. Elliott, Thomas, M.D., Monson-place, Tunbridge Wells.

1889. Embleton, Dennis Cawood, M.R.C.S., St. Wilfrid's, St. Michael's-road, Bournemouth.
1883. Emond, E., M.D., 113, Boulevard Beaumarchais, Paris.
1883. English, Edgar, M.R.C.S., 1, Thorne-road, Doncaster.
1880. English, Thomas Johnston, M.D., 128, Fulham-road, S.W.
1889. Esler, Robert, M.D., 4, Queen's-road, Peckham, S.E.
1891. Euan-Smith, Euan McLaurin, M.R.C.S., 253, Cromwell-road, S.W.
1894. Evans, Willmott Henderson, F.R.C.S., 13, Taviton-street, Gordon-square, W.C.
1883. Ewart, Sir Joseph, M.D., J.P., Retired Dep. Surgeon-General, Bengal Army, Montpellier Hall, Brighton. c.
1877. Ewart, William, M.D., 33, Curzon-street, Mayfair, W. c. *Councillor.*

1889. Fairbank, Frederick Royston, M.D., 16, Eversfield-place, St. Leonards-on-Sea.
1884. Fardon, Edward Ashby, M.R.C.S., Middlesex Hospital, W.
1873. Fayrer, Sir Joseph, Bart., K.C.S.I., LL.D., M.D., F.R.S., 16, Devonshire-street, Portland-place, W. p, vp, ll, sm, o, c.
1896. Fayrer, Joseph, M.D., Surgeon-Captain, India.
1884. Fenton, Frederick Enos, F.R.C.S., 33, Welbeck-street, W.
1888. Fenwick, Bedford, M.D., 20, Upper Wimpole-street, W.
1885. Fenwick, Edwin Hurry, F.R.C.S., 14, Savile-row, W. c.
1887. Ferrier, David, M.D. Edin., F.R.S., 34, Cavendish-square, W. c.
1878. Field, George, M.R.C.S., 34, Wimpole-street, W. c.
1894. Fisher, Frederick Charles, F.R.C.S., King's Langley, Herts.
1876. Fisher, Frederic Richard, F.R.C.S., 18, Wimpole-street, W.
1894. Fleming, Samuel, M.B., Cranley-gardens, Highgate, N.
1884. Flint, Arthur, M.D., J.P., Westgate Lodge, Westgate-on-Sea.
1878. *Fonmartin, Henry de, M.D., 26, Newberry-terrace, Lower Bullar-street, Southampton.
1893. Forbes, Norman Hay, F.R.C.S., Edin., Montpelier Lodge, Tunbridge Wells.
1884. Fotherby, Henry Arthur, M.R.C.S., 17, Scarsdale-terrace, Chenistongardens, Kensington, W.
1879. Fowler, James Kingston, M.D., 35, Clarges-street, Mayfair, W. s 2, c. *Vice-President.*
1873. Fox, Arthur Edward Wellington, M.B., C.M., 16, Gay-street, Bath. c.
1887. Fox, Fortescue, M.D., Strathpeffer Spa, Ross-shire.
1871. Fox, Francis, M.R.C.S., 70, Wimpole-street, W. c 3.
1885. Fox, R. Hingston, M.D., 23, Finsbury-square, E.C.
1879. Fox, Thomas Colcott, M.B., 14, Harley-street, W. s 2. c 2.
1868. Freer, Alfred, J.P., Stourbridge, Worcestershire.
1896. Freyer, P. Johnston, M. Ch., Surgeon-Lieut.-Colonel (*retired*), 46, Harley-street, W.
1886. Frith, Baptist Gamble, M.B., 29, Cornwallis-gardens, Hastings.

1884. Frost, William Adams, F.R.C.S., 17, Queen Anne-street, W. c 2.
1894. Fyffe, William Kington, M.B., New Zealand.

1883. Gabbett, Henry Singer, M.D., 8, Chiswick-place, Eastbourne.
1895. Galloway, James, M.D., 54, Harley-street, W.
1862. *Gant, Frederick James, F.R.C.S., *Honorary Fellow* (*q. v.*).
1847. *Garrod, Sir Alfred Baring, M.D., F.R.S., 10, Harley-street, W. p, vp 2, ll, o, c 9.
1887. Garrod, Archibald Edward, M.D., 9, Chandos-street, Cavendish-square, W. c 3.
1893. Garson, John George, M.D., 64, Harley-street, W.
1891. Gaster, Aughel, M.D., 55, Greencroft-gardens, South Hampstead, N.W.
1887. Gay, John, M.R.C.S., 119, Upper Richmond-road, Putney, S.W.
1856. *Gibbon, Septimus, M.B., 39, Oxford-terrace, W.
1882. Gibbons, Robert Alexander, M.D., 29, Cadogan-place, S.W.
1893. Gibson, Charles, M.D., Vanderbilt-court, Harrogate.
1897. Gibson, George Alexander, M.D., 17, Alva-street, Edinburgh.
1881. Giffard, Douglas W., M.R.C.S., 5, Pavilion-parade, Brighton.
1867. Gill, William, M.R.C.S., 11, Russell-square, W.C. c.
1894. Gill, Richard, F.R.C.S., 72, Wimpole-street, W.
1869. *Godson, Clement, M.D., 9, Grosvenor-street, W. vp, c 3, s 2, sm.
1873. Goodsall, David Henry, F.R.C.S., 17, Devonshire-place, Portland-place, W. vp 2. c, s 2, sm, cfc 7. *Treasurer; Chairman, House and Finance Committee.*
1892. Gordon, Robert John, M.B., Kwangchengtse Newchwang, North China.
1878. *Gould, Alfred Pearce, M.S., 10, Queen Anne-street, W. s 2, c 3, o. *Vice-President.*
1896. Gow, William John, M.D., 27, Weymouth-street, W.
1876. Gowers, Sir William Richard, M.D., F.R.S., 50, Queen Anne-street, W. vp, c, sm, ll. fm. 1893.
1887. Grant, James Edward Roney, M.R.C.S., 2, Charing Cross-chambers, Duke-street, Adelphi, W.C.
1896. Grant, J. Dundas, M.D., 8, Upper Wimpole-street, W.
1881. Green, Thomas Henry, M.D., 74, Wimpole-street, W. c 2. vp.
1886. Greves, Edwin Hyla, M.D., Rodney House, Bournemouth.
1873. Grieve, the Hon. Robert, M.D., C.M.G., British Guiana.
1875. Griffith, G. de Gorrequer, M.R.C.S., 34, St. George's-square, S.W.
1885. Griffiths, Charles Thomas, L.R.C.P., 125, Soho-hill, Birmingham.
1884. Griffiths, Herbert Tyrrell, M.B., 5, Kensington-square, W.
1880. Gristock, William, M.D. Lond., 6, Finchley-road, N.W.
1893. Gubb, Alfred Samuel, M.D. Paris, 29, Gower-street, W.C.
1891. Guthrie, Leonard G., M.D., 15, Upper Berkeley-street, W.

1886. Habershon, S. Herbert, M.D., 70, Brook-street, Grosvenor-square, W.
1891. Hadley, Wilfred J., M.D., 58, Harley-street, W.
1887. Haig, Alexander, M.D., 7, Brook-street, W.
1881. Hall, Charles Ross, M.R.C.S., Hatfield, Herts.
1874. *Hall, Francis de Havilland, M.D., 47, Wimpole-street, W. vp 2, ll, c 7, s 2, sm.
1881. Hames, George Henry, F.R.C.S., 29, Hertford-street, Mayfair, W.
1879. Hamilton, Seton Guthrie, Surgeon-Captain.
1891. Handfield-Jones, Montagu, M.D., 35, Cavendish-square, W.
1850. *Hare, Charles John, M.D., *Honorary Fellow* (*q. v.*). *Trustee.*
1891. Harold, John Patrick, M.R.C.S., 91, Harley-street, W.
1882. Harper, Gerald Samuel, M.B., 40, Curzon-street, Mayfair, W. c.
1895. Harrison, Charles James, M.D., Rossetti-mansions, Chelsea, S.W.
1871. Harrison, Reginald, F.R.C.S., 6, Lower Berkeley-street, Portman-square. p, vp 2, ll, c. *Councillor.*
1883. *Hartridge, Gustavus, F.R.C.S., 12, Wimpole-street, W.
1882. Harvey, John Stephenson Selwyn, M.D., 1, Astwood-road, Cromwell-road, S.W.
1882. Haslam, William Frederick, F.R.C.S., 24, York-road, Edgbaston, Birmingham. c 3.
1852. *Haward, Edwin, M.D., 34a, Gloucester-place, W.
1883. Hawken, Charles St. Aubyn, Wadeford, Chard, Somerset.
1889. Hawkins, Francis Henry, M.B., 26, Portland-place, Reading.
1897. Hayman, Albert Stephen, L.R.C.P., 26, Welbeck-street, W.
1890. Hebb, Frederick Theodore, M.R.C.S., 98, Oakley-street, Chelsea-embankment, S.W.
1891. Hensman, Frank, M.R.C.S., Surgeon-Major.
1883. Herman, George Ernest, M.B., 20, Harley-street, W.
1879. Heron, George Allan, M.D., 57, Harley-street, Cavendish-square, W. c 3.
1883. Herschell, George A., M.D., 27, Queen Anne-street, W.
1883. Hewitt, Frederick William, M.D., 10, George-street, Hanover-square, W. c.
1895. Hill, Ernest, M.R.C.S., Western Hospital, Fulham, S.W.
1892. Hill, William, M.D., 28, Weymouth-street, W.
1873. Hobson, William Henry, M.R.C.S., Great Berkhamstead, Herts.
1895. Hodgson, George Goodfellow, M.R.C.S., Devonshire House, Bootle, Liverpool.
1879. Hogg, Arthur John, M.R.C.S., Leslie Lodge, Haven-green, Ealing, W.
1884. Holland, Charles Edward, M.B., "Airdrie," The Avenue, Kew Gardens, Surrey.
1868. Holman, Constantine, M.D., 26, Gloucester-place, Portman-square, W. c 4. *Vice-President.*
1881. Hood, Donald William Charles, M.D., 43, Green-street, W. c 2.
1896. Horsley, Victor, F.R.C.S., F.R.S., 25, Cavendish-square, W. f.m., 1896.

1883. *Hovell, T. Mark, F.R.C.S. Edin., 105, Harley-street, W.
1886. Huddart, Cuthbert Henry Cooke, M.B., Shoyswell Manor, Etchingham, Sussex.
1890. Hughes, Edgar, F.R.C.S., 91, Onslow-gardens, South Kensington, S.W.
1864. Hume, Frederick Henry, M.D., 53, Devonshire-street, Islington, N.
1884. Hunter, Sir Guyer, M.D., K.C.M.G., 21, Norfolk-crescent, Hyde Park, W.
1889. Hunter, William, M.D., 103, Harley-street, W.
1881. Hutchinson, Jonathan, F.R.C.S., F.R.S., 15, Cavendish-square. P, LL, C 5, O.
1892. Hutchinson, Jonathan, Jun., F.R.C.S., 1, Park-crescent, Portland-place, W.
1875. Hutchinson, Samuel John, M.R.C.S., 64, Brook-street, W.
1895. Hyde, Samuel, M.D., Lismore House, Buxton, Derbyshire.

1889. I'Anson, William Andrew, M.R.C.S., Denton Hall, Newcastle-on-Tyne.
1891. Isaac, George Washington, M.B., 75, Gower-street, W.C.

1884. *Jackson, Frederick William, M.D., Yorkgate House, Broadstairs.
1868. Jackson, John Hughlings, M.D., F.R.S., 3, Manchester-square, W. P, VP, O, C 5.
1887. Jamison, Arthur Andrew, M.D., 18, Lowndes-street, Belgrave-square, S.W.
1884. Jennings, Charles Egerton, M.D., 48, Seymour-street, W.
1886. Jervis, Arthur, M.D., 52, York-street, Portman-square, W.
1883. Jessop, Walter Hamilton, F.R.C.S., 73, Harley-street, W.
1893. Johnston, George Francis, M.D., 6, Manchester-square, W.
1886. Johnston, James, M.D., 53, Prince's-square, Bayswater, W.
1893. Joll, Boyd Burnett, M.B., 27, Bedford-square, W.C.
1888. Jones, Arthur Henry, M.D., 45, Sheep-street, Northampton.
1893. Jones, Henry Lewis, M.D., 9, Upper Wimpole-street, W.
1890. Jones, H. MacNaughton, M.D., 141, Harley-street, Cavendish-square, W.
1888. Jones, John Talfourd, M.B., Rosebank, South-terrace, Eastbourne, Sussex.
1892. *Jones, Robert, F.R.C.S., 11, Nelson-street, Liverpool.
1896. Jones, Robert, M.D., Claybury Asylum, Woodford Bridge, Essex.
1881. Jones, Thomas William Carmalt, F.R.C.S. Edin., 6, Westbourne-street, Hyde Park, W.
1893. Joule, John Samuel, M.D., 32, Maida-hill West, W.
1877. Juler, Henry Edward, F.R.C.S., 23, Cavendish-square, W. C. *Councillor.*

1889. Kauffmann, Otto Jackson, M.D., 22, Broad-street, Birmingham.
1891. Keegan, Denis Francis, M.D., Brigade Surgeon-Lieutenant-Colonel, East India United Service Club, St. James's-square, S.W.

1896. Keep, A. Corrie, M.C., 7, Lower Seymour-street, Portman-square, W.
1884. Keetley, Charles Bell, F.R.C.S., 56, Grosvenor-street, W. c 3.
1847. *Kellock, William Berry, M.D., 94, Stamford-hill, N.
1891. Kelson, William Henry, M.D., 46, Watling-street, E.C.
1890. Ker, Hugh Richard, F.R.C.S. Edin., Tintern, 2, Balham Hill, S.W.
1884. Kerr, Norman, M.D., 1, Hamilton-terrace, Regent's Park, N.W. c 2. *Councillor.*
1881. Keser, Jean Samuel, M.D., 11, Harley-street, W. c 2, § 3.
1876. Key, Augustus Cooper, M.D., 30, Wilton-place, S.W. c 2.
1886. Kidd, Percy, M.D., 60, Brook-street, W. c 2.
1895. King, Arthur, M.B., Belmont, Station-road, Watford, Herts.
1883. Knapton, George, L.R.C.P. Edin., Hapton, Norfolk, and Craven House, Moss-lane, Manchester.
1875. Knox, John, M.D., Bethnal Green Infirmary, E.

1889. Lake, Richard, F.R.C.S., 19, Harley-street, W.
1868. Lake, William Charles, M.D., Teignmouth, Devon.
1895. Lane, James Ernest, F.R.C.S., 46, Queen Anne-street, W.
1881. Langton, John, F.R.C.S., 62, Harley-street, W. c 2.
1882. Larkin, F. Colet, M.B., *Travelling.*
1890. Law, Edward, M.D. Edin., 35, Harley-street, W.
1890. Lawrie, Edward, M.B. Edin., Surgeon-Lieutenant-Colonel, Bengal Army, The Residency, Hyderabad.
1858. *Lawson, George, F.R.C.S., 12, Harley-street, W. vp 2, c 3.
1893. Lee, E. Samuel, M.D., 31, Pevensey-road, St. Leonards-on-Sea.
1887. Leggatt, Charles Ashley Scott, M.D., 2, Walton-place, S.W.
1894. Lendon, Edwin Harding, M.B. (Oxon.), 162, Holland Park Avenue, W.
1886. Lewers, Arthur Hamilton Nicholson, M.D. Lond., 72, Harley-street, W.
1895. Lewis, Ernest Wool, M.R.C.S., 12, King-street, Hammersmith, W.
1867. Lichtenberg, George, M.D., 47, Finsbury-square. c 2.
1878. Lister, the Right Hon. Lord, D.C.L., LL.D., F.R.C.S., President of the Royal Society, 12, Park-crescent, Portland-place. o.
1896. Lister, Thomas D., F.R.C S., 95, Wimpole-street, W.
1889. Little, Ernest Muirhead, F.R.C.S., 40, Seymour-street, Portman-square, W.
1889. Little, Fletcher, M.D., 32, Harley-street, W.
1878. Lockwood, Charles Barrett, F.R.C.S., 19, Upper Berkeley-street, W. vp 2, c, s 2. *Councillor.*
1873. Loe, James Scarborough, 98, Woodhouse-lane, Leeds.
1881. Lorimer, G., M.D., 9, Terrace-road, Buxton, Derbyshire.
1868. Lowe, John, M.D., J.P., 4, Gloucester-place, Portman-square, W. c 3.
1897. Luff, Arthur Pearson, M.D., 31, Weymouth-street, W.

1868. *Lund, Edward, F.R.C.S., 22, St. John's-street, Manchester. o, c 3.
1889. Lunn, Henry Simpson, M.D., 5, Endsleigh-gardens, N.W.
1889. Lush, Percy, M.B., 4, Maresfield-gardens, Hampstead, N.W.

1884. MacBryan, Henry Crawford, Kingsdown House, Box, Wilts.
1894. McCann, Frederick John, M.B., 5, Curzon-street, Mayfair, W.
1885. McConnel, Henry Wilson, M.B., Great Ryburgh, Fakenham, Norfolk.
1871. MacCormac, Sir William, Bart., 13, Harley-street, W., President of the Royal College of Surgeons. p, vp, § 2, c 4, o.
1885. MacGeagh, Thomas Edwin Foster, M.D., 23, New Cavendish-street, W.
1896. MacGregor, Patrick Fraser, M.B., Highercombe, Leytonstone.
1873. McHardy, Malcolm Macdonald, F.R.C.S. Edin., 5, Savile-row, W.
1882. MacKellar, Alexander Oberlin, F.R.C.S., 79, Wimpole-street, W.
1894. Mackenzie, Hector William Gavin, M.D., 59, Welbeck-street, W.
1880. Mackenzie, Stephen, M.D., 18, Cavendish-square, W. vp 2, c 4, ll.
1881. Maclagan, Thomas John, M.D., 9, Cadogan-place, S.W. c 3.
1861. MacLaren, Alexander Connell, 60, Harley-street, W.
1891. Maclean, Allan, 10, Mitre-court Chambers, Temple, E.C.
1887. Macready, Jonathan Foster Christian Horace, F.R.C.S., 51, Queen Anne-street, W. c. *Councillor.*
1883. Maddick, Edmund Distin, F.R.C.S. Edin., 2, Chandos-street, Cavendish-square, W.
1885. Maguire, Robert, M.D., 4, Seymour-street, W. c 2. *Hon. Secretary.*
1890. Malcolm, John David, F.R.C.S. Edin., 13, Portman-street, Portman-square, W.
1893. Malcolm, William A., M.B., Oak House, 421, Holloway-road, N.
1887. Mantle, Alfred, M.D., Savile-place, Halifax.
1888. Mapother, Edward Dillon, M.D., 32, Cavendish-square, W. c 3.
1891. Marsh, Howard, F.R.C.S., 30, Bruton-street, W.
1892. Marshall, Arthur Lumsden, M.B., 56, Rectory-road, N.
1869. Marshall, William, M.D., Torricburn, Barnes, S.W. c.
1864. Marshall, William Gurslave, F.R.C.S., 72, Bromfelde-road, Clapham, S.W.
1889. Martin, John Michael Harding, M.D., Arnheim, Blackburn, Lancashire.
1890. Martin, Sidney, M.D., F.R.S., 10, Mansfield-street, W.
1893. Mason, George Armstrong, M.B., 45, George-street, Portman-square, W.
1884. Matheson, Farquhar, M.B., 11, Soho-square, W.
1891. Maude, Arthur, M.R.C.S., Winterton House, Westerham, Kent.
1892. May, Chichester Gould, M.D., 26, Walton-street, Pont-street, S.W.
1891. May, William Page, M.D., 49, Welbeck-street, W.
1884. Meredith, William Appleton, F.R.C.S., 21, Manchester-square, W. c.

1895. Monier-Williams, Montagu Sneade Faithfull, M.R.C.S., 54, Onslow-gardens, S.W.
1883. Moore, Thomas, F.R.C.S., 6, Lee-terrace, Blackheath, S.E.
1883. Morgan, John Hammond, F.R.C.S., 68, Grosvenor-street, W. s 2, c. *Vice-President. Lettsomian Lecturer.*
1893. Morison, Alexander, M.D., 14, Upper Berkeley-street, W.
1871. Morley, Alexander, 42, Albemarle-street, W.
1895. Morley, Frank, M.R.C.S., 42, Albemarle-street, W.
1881. Morris, Henry, F.R.C.S., 8, Cavendish-square, W. c.
1878. Morris, Malcolm Alexander, F.R.C.S. Edin., 8, Harley-street, W. c 2.
1882. Morton, Andrew Stanford, F.R.C.S., 133, Harley-street, W.
1884. *Moullin, Charles William Mansell, F.R.C.S., 69, Wimpole-street, W.
1893. Murphy, George Wyndham, M.B., J.P., 228, Gloucester-terrace, Hyde Park, W.
1894. Murray, Charles Stormont, L.R.C.S. Edin., 85, Gloucester-place, W.
1884. Murray, Fred., M.B., Durbanville, Cape Colony, South Africa.
1890. Murray, George, M.R.C.S., 34, Wimpole-street, Cavendish-square, W.
1886. Murray, Hubert Montague, M.D., 27, Savile-row, W. c 3.
1879. Murrell, William, M.D., 17, Welbeck-street, W.

1893. Napier, Alexander Disney Leith, M.D., General Hospital, Adelaide, South Australia.
1894. Naumann, J. C. Francis, M.D., 125, Gower-street, W.C.
1877. Nesbitt, Dawson, M.D., 1, Norfolk-square, Hyde Park, W.
1876. Newham, James, 80, Gloucester-place, W.
1889. *Nias, J. Baldwin, M.D., 5, Rosary-gardens, South Kensington, S.W.
1880. Nix, Edward James, M.D., 11, Weymouth-street, W. c 3.

1887. Oakley, Adam Robert Hamilton, L.R.C.P., Treath, Hornchurch, Essex.
1894. O'Callaghan, Robert, F.R.C.S.I., 137, Harley-street, W.
1885. Ogilvie, Leslie, M.B., 46, Welbeck-street, W.
1884. Ogle, Charles John, M.R.C.S., 1, Cavendish-place, W.
1884. Oliver, George, M.D., West End Park, Harrogate.
1892. Openshaw, Thomas Horrocks, F.R.C.S., 16, Wimpole-street, W.
1875. Ord, William Miller, M.D., 37, Upper Brook-street, W. p, o, c 4.
1892. Ord, William Wallis, M.D., The Hall, Salisbury.
1887. Ormerod, Joseph Arderne, M.D., 25, Upper Wimpole-street, W. c.
1889. Orton, George Hunt, M.B., 1a, Campden Hill-road, Kensington, W.
1884. Orwin, Arthur Wigelsworth, M.D., 15, Weymouth-street, Portland-place, W.
1894. Osborn, Samuel, F.R.C.S., J.P., Maisonnette, Datchet, near Windsor.
1880. Oswald, James Waddell Jeffreys, M.D., 245, Kennington-road, S.E. c 2. *Councillor.*

1883. Owen, Charles J. Rayley, 14, Devonshire-terrace, Hyde Park, W. *Councillor.*

1878. *Owen, Edmund, F.R.C.S., 64, Great Cumberland-place, W. o, vp 2, c 3, s 2, sm, ll. *Trustee.*

1881. Owen, Isambard, M.D., 40, Curzon-street, Mayfair, W. s 2, c 4.

1886. Paget, Stephen, F.R.C.S., 70, Harley-street, W. c 2.

1880. Palmer, Frederick Stephen, M.D., Compton Lodge, East Sheen, S.W.

1882. Palmer, William Pitt, M.B., 17, Belgrave-terrace, Torquay.

1877. *Paramore, Richard, M.D., 2, Gordon-square, W.C.

1881. Parrott, Edward John, M.R.C.S., The Thorn, Hayes, Middlesex.

1871. Parsons, Francis Henry, M.D., "The Hurst," West Worthing.

1885. Pasteur, William, M.D., 4, Chandos-street, Cavendish-square, W. s 2, c. 2.

1872. Patten, Charles Arthur, M.R.C.S., Marpool House, Ealing, W.

1891. Patterson, Charles Sumner, M.B., 40, Highbury-place, N.

1890. Pattison, Edward Seton, M.R.C.S., Granville House, Fulham-park, S.W.

1861. Paul, John Hayball, M.D., 34, The Terrace, Camberwell, S.E. c 6.

1854. *Pavy, Frederick William, M.D., F.R.S., 35, Grosvenor-street, W. vp, ll, c.

1881. *Peacey, William, M.D., Rydal Mount, St. John's-road, Eastbourne.

1883. Peck, Edward George, M.A., Queensbury, Bradford, Yorks.

1871. Pedler, George Henry, M.R.C.S., 6, Trevor-terrace, Knightsbridge, S.W.

1883. Perigal, Arthur, M.D., New Barnet, Herts.

1878. Philipps, Sutherland Rees, M.D., St. Ann's Heath, Virginia Water, Berks.

1894. Phillipps, William Alfred, M.D., 13, John-street, Berkeley-square, W.

1876. Phillips, Charles Douglas Ferguson, M.D., F.R.S.E., 10, Henrietta-street, Cavendish-square, W. c 3.

1873. Phillips, George Richard Turner, M.R.C.S., 24, Palace-court, Bayswater-hill, W. c 2.

1885. Phillips, John, M.D., 68, Brook-street, W.

1883. Phillips, Sidney Philip, M.D. Lond., 62, Upper Berkeley-street, Portman-square, W.

1883. Pick, Thomas Pickering, F.R.C.S., 18, Portman-street, W. c 2.

1883. Pitts, Bernard, F.R.C.S., 109, Harley-street, Cavendish-square. c 5, s 2.

1890. Pope, Harry Campbell, M.D. Lond., 280, Goldhawk-road, Shepherd's Bush, W.

1873. Port, Heinrich, M.D., 48, Finsbury-square, E.C. § 3. c.

1871. Powell, Sir Richard Douglas, Bart., M.D., 62, Wimpole-street, W. p, vp, c 5, o.

1891. Powell, William Wyndham, F.R.C.S., 16, Old Burlington-street, W.

1891. Preston, Theodore Julian, M.R.C.S., Fleet Surgeon, Royal Navy, 238, Portsdown-road, Maida Vale, W.
1891. *Prickett, Marmaduke, M.D., 27, Oxford-square, W.
1885. Pringle, John James, M.B., 23, Lower Seymour-street, W.
1889. Pritchard, Owen, M.D., 41, Gloucester-square, W.

1870. Quain, Sir Richard, Bart., M.D., F.R.S., 67, Harley-street, W. vp, c 3.

1892. Ramsay, James, M.D., High Peter-gate, York.
1894. Rankin, Guthrie, M.D., 4, Chesham-street, Belgravia, S.W.
1881. Ranking, John Ebenezer, M.D., Hanover House, Tunbridge Wells.
1894. Rayner, Herbert Edward, F.R.C.S., Harcourt House, Camberley, Surrey.
1859. *Rayner, John, M.D., Swaledale House, Highbury-quadrant, N.
1890. Reid, John, M.B., Clanmurray, Dromore, co. Down.
1882. Reid, Thomas Whitehead, M.D., 34, St. George's-place, Canterbury.
1887. Remfry, Leonard, M.D., 60, Great Cumberland-place, Hyde Park, W.
1872. Richards, Joseph Peeke, M.R.C.S., 6, Freeland-road, Ealing, W. c 3.
1868. *Roberts, David Lloyd, M.D., F.R.S.E., 11, St. John's-street, Manchester.
1857. *Roberts, David Watkin, M.D., 56, Manchester-street, W.
1885. Roberts, Edward Coleridge, M.R.C.S., Southgate, N.
1874. Roberts, Frederick Thomas, M.D., 102, Harley-street, W. vp 2, ll, c. *Orator.*
1889. Roberts, Sir William, M.D., F.R.S., 8, Manchester-square, W. c.
1884. Robinson, Arthur Henry, M.D., Mile End Infirmary, Bancroft-road, E.
1896. Robson, A. Mayo, F.R.C.S., 7, Park-square, Leeds.
1847. *Rogers, William Richard, M.D., 26, Upper Baker-street, N.W. vp, c 6.
1897. Rolleston, Humphry Davy, M.D., 112, Harley-street, W.
1890. Root, Arthur Guernsey, M.D., 46, Eagle-street, Albany, New York, U.S.A.
1886. Rose, Robert Duncan, F.R.C.S., St. Leonard's-place, York.
1874. Rose, William, F.R.C.S., 17, Harley-street. c 2, ll, vp 2.
1883. *Ross, Daniel McClure, M.D., Cedar Lodge, Littledown-road, Bournemouth.
1888. *Roth, Bernard, F.R.C.S., J.P., 29, Queen Anne-street, W.
1893. Roughton, Walter, F.R.C.S., Cranborne House, New Barnet, Herts.
1876. Routh, Alfred Curtis, 33, Marina, St. Leonards-on-Sea.
1881. *Routh, Amand, M.D., 14a, Manchester-square, W. c 3, s 2, *Councillor.*

1848. *Routh, Charles Henry Felix, M.D., 52, Montagu-square, W. p, vp 2, o, ll, s 4, c 6, sm. *Trustee.*

1891. Ruffer, Marc Armand, M.D., Medical School, Cairo, Egypt.

1887. Rushworth, Frank, M.D., "Langdale," Goldhurst-terrace, South Hampstead, N.W.

1889. Russell, James Samuel Risien, M.D., 4, Queen Anne-street, W.

1886. Rutherfoord, Henry Trotter, M.D., Salisbury House, Taunton.

1887. Sainsbury, Harrington, M.D., 63, Welbeck-street, W.

1863. *Sansom, Arthur Ernest, M.D., 84, Harley-street, W. vp, s 2, c 5, sm, §, ll, o. *President.*

1895. Sansom, Charles Lane, F.R.C.S. Edin., 5, Grosvenor-gardens, Grosvenor-place, S.W.

1886. Savage, George Henry, M.D., 3, Henrietta-street, W. c.

1886. Savill, Thomas Dixon, M.D., 60, Upper Berkeley-street, W.

1873. Sedgwick, James, M.D., Boroughbridge, Yorkshire.

1868. Sedgwick, Leonard William, M.D., 48, Gloucester-terrace, Hyde Park, W. vp 2, c 4, § 3.

1883. Semon, Sir Felix, M.D., 39, Wimpole-street, W. §, c.

1887. Servais, Leopold, M.D., Antwerp, Belgium.

1889. Shaw, George, M.B., 1, The Drive, West Brighton.

1884. Shaw, John, M.D., Burlington House, Willoughby-road, Hampstead, N.W.

1886. Sheild, Arthur Marmaduke, F.R.C.S., 4, Cavendish-place, W. c 2, s 2.

1890. Sheppard, William John, M.D., 211, Upper Richmond-road, Putney, S.W.

1881. Shipton, Arthur, F.R.C.S. Edin., Buxton, Derbyshire.

1885. Shoemaker, John V., M.D., 1031, Walnut-street, Philadelphia, U.S.A.

1894. Shuttleworth, George Edward, M.D., Ancaster House, Richmond, Surrey.

1890. Silk, John Frederick William, M.D., 29, Weymouth-street, W.

1884. Simpson, James Herbert, M.D., The Crescent, Rugby, Warwickshire.

1884. Sinclair, John, M.R.C.P., General Post Office, St. Martin's-le-Grand, E.C.

1891. Sisley, Richard, M.D., *Travelling.*

1883. *Skerritt, Edward Markham, M.D., Richmond Hill, Clifton.

1886. Slater, Charles, M.B., 81, St. Ermin's-mansions, Westminster, S.W.

1862. Slight, George, M.D., 14, Old Burlington-street, W. c 2.

1889. Smale, Morton, M.R.C.S., 22a, Cavendish-square, W. *Councillor.*

1845. *Smiles, William, M.D., St. Martha's Lodge, Guildford. vp 2, s 4, c 9, sm.

1896. Smith, E. Stanley, M.D., 10, Kensington Gardens-square, W.

1887. Smith, Frederick John, M.D., 4, Christopher-street, Finsbury-square, E.C.

1882. Smith, Herbert Urmson, Oudtshoorn, Cape of Good Hope, South Africa.
1873. Smith, Heywood, M.D., 18, Harley-street, W. c 3.
1880. Smith, Noble, F.R.C.S. Edin., 24, Queen Anne-street, W.
1891. Smith, Solomon Charles, M.D., 1, Montagu Mansions, Montagu-square, W.
1877. Smith, Sydney Lloyd, M.R.C.S., 25, Argyle-square, King's Cross, W.C.
1882. Smith, Thomas Frederick Hugh, F.R.C.S., Farningham, Kent.
1873. *Smith, Thomas Gilbart, M.D., 68, Harley-street, W. vp 2, s 2, sm, c 4. *Trustee.*
1872. Smith, Walter, M.R.C.P. Edin., Orleans House, 60, Regent's Park-road, N.W.
1874. Smyth, William Woods, L.R.C.P. Edin., Maidstone.
1894. Snape, Ernest Alfred, M.D., 41, Welbeck-street, W.
1893. Spencer, Herbert Ritchie, M.D., 10, Mansfield-street, W.
1887. Spicer, Scanes, M.D., 28, Welbeck-street, W.
1883. Spitta, Edmund Johnson, M.R.C.S., Ivy House, Clapham Common, S.W.
1864. Squire, Alexander John Balmanno, M.B., 24, Weymouth-street, Portland-place.
1881. Startin, James, M.R.C.S., 15, Harley-street, W.
1892. Staveley, William H. C., F.R.C.S., 13, South Eaton-place, S.W.
1896. Steele-Perkins, George Chapman, M.B., 85, Wimpole-street, W.
1884. Stephens, William John, 9, Old Steine, Brighton.
1892. Stewart, Hastings, M.R.C.S., 8, Albany-courtyard, Piccadilly, W.
1882. Stewart, James, F.R.C.P. Edin., Dunmurry, Sneyd-park, near Clifton.
1894. Stewart, Kenneth Trevor, M.D., 12, Chapel-street, Belgrave-square, S.W.
1883. Stewart, William Robert Henry, F.R.C.S. Edin., 42, Devonshire-street, Portland-place, W.
1884. Stiven, Edward Winnan Fleming, M.D., Lincoln House, Harrow, Middlesex.
1885. Stivens, B. H. Lyne, M.D., 107, Park-street, Grosvenor-square, W.
1848. *Stocker, John Sherwood, M.D., 2, Montagu-square, W. c 10, s 2.
1884. Stoker, George, M.R.C.S., J.P., 14, Hertford-street, Mayfair, W.
1892. Stonham, Charles, F.R.C.S., 4, Harley-street, W.
1877. Stowers, James Herbert, M.D., 128, Harley-street, W.
1873. Strange, William Heath, M.D., 5, Grosvenor-street, W. c 3.
1881. Sturge, William Allen, M.D., Maison Malausséna, Boulevard Dubouchage 29, Nice. sm.
1889. Sumpter, Walter John Ernely, M.R.C.S., Sheringham, Norfolk.
1892. Sunderland, Septimus, M.D., 11, Cavendish-place, W.
1876. *Sutherland, Henry, M.D., 21, New Cavendish-street, W.
1892. Sutton, J. Bland, F.R.C.S., 48, Queen Anne-street, W.
1896. Swanton, James Hutchinson, M.D., Causey Ware Hall, Lower Edmonton, N.

1892. Swift, William John Cropley, M.R.C.S., 4, Gordon-square, W.C.
1885. *Syers, Henry Walter, M.D. Camb., 4, Oxford and Cambridge Mansions, Hyde Park, W.
1884. Symonds, Horatio Percy, F.R.C.S., 35, Beaumont-street, Oxford.
1893. Symonds, Charters James, F.R.C.S., 26, Weymouth-street, W.

1864. Tait, Edward Wilmshurst, M.R.C.S., 48, Highbury-park, N.
1879. *Tait, Lawson, F.R.C.S., 195, Newhall-street, Birmingham.
1875. Tamplin, Charles Harris, M.R.C.S., 17, Paragon, Ramsgate.
1882. Taylor, Seymour, M.D., 16, Seymour-street, Portman-square, W. c 2.
1897. Templeton, George, F.R.C.S., 8, Mansfield-street, W.
1859. Thompson, Edmund Symes, M.D., 33, Cavendish-square, W. vp, o, s 3, c 3, sm.
1855. *Thompson, Sir Henry, F.R.C.S., 35, Wimpole-street, W. vp., ll., c 4.
1896. Thompson, Henry George, M.D., 86, Lower Addiscombe-road, Croydon, Surrey.
1895. Thompson, James Andrew Baird, M.D., White Hall, Abridge, Essex.
1873. Thomson, John Roberts, M.D., Monkchester, Bournemouth, Hants.
1894. Thomson, St. Clair, M.D., 28, Queen Anne-street, W.
1897. Thornton, Bertram, M.R.C.S., J.P., Berkeley Lodge, Trinity-square, Margate.
1892. Thornton, George, M.D., Fountain Hospital, Lower Tooting, S.W.
1876. Thornton, John Knowsley, M.C., J.P., 13, Portman-street, Portman-square, W. p, vp, c 3.
1867. Thorowgood, John Charles, M.D., 61, Welbeck-street, W. ll, s 2, s.m, c 3, vp 4. *Councillor.*
1856. *Thudichum, John Louis William, M.D., 11, Pembroke-gardens, Kensington, W. vp, ll, o, c.
1884. Thursfield, Thomas William, M.D., J.P., Selwood, Beauchamp-square, Leamington.
1865. Travers, William, M.D., 2, Phillimore-gardens, Kensington, W.
1884. *Treves, Frederick, F.R.C.S., 6, Wimpole-street, W. c 3, ll, vp 2.
1882. Tuke, Charles Molesworth, Chiswick House, Chiswick.
1886. Tuke, Thomas Seymour, M.B. Oxon., Chiswick House, Chiswick.
1884. Turner, George R., F.R.C.S., 49, Green-street, Grosvenor-square, W. s 2, c 2. *Councillor.*
1890. Tweed, Edward Reginald, M.D., Hembury Fort, Honiton, Devon.
1883. Tweedy, John, F.R.C.S., 100, Harley-street, W. c.
1891. Tyson, William Joseph, M.D., 10, Langhorne-gardens, Folkestone.

1887. *Underwood, Edward T., M.D., Fort Bombay, India.

1897. Vassie, Alexander Henry, M.B., 98, Priory-road, West Hampstead, N.W.
1883. Venning, Edgcombe, F.R.C.S., 30, Cadogan-place, S.W.

1874. Verley, Reginald Louis, F.R.C.P. Edin., St. George's Club, Hanover-square, W.
1893. Voelcker, Arthur Francis, M.D., 31, Harley-street, W.

1892. Waggett, Ernest Blechynden, M.B., 49, Upper Brook-street.
1850. *Waggett, John, M.D., Perivale, Bournemouth; and Union Club, S.W.
1884. Wakley, Thomas, jun., L.R.C.P. Lond., 5, Queen's-gate, S.W.
1850. *Wakley, Thomas Henry, F.R.C.S., 5, Queen's-gate, S.W.
1894. Wallis, Frederick Charles, F.R.C.S., 26, Welbeck-street, W.
1880. Walsham, William Johnson, F.R.C.S., 77, Harley-street, W. c.
1895. Walters, Frederick R., M.D., 60, Welbeck-street, W.
1894. Waring, Holburt Jacob, F.R.C.S., 9, Upper Wimpole-street, W.
1894. Waterhouse, Herbert Furnivall, F.R.C.S., 81, Wimpole-street, W.
1883. Waterhouse, William Dakin, LL.D., 18, Woodchurch-road, West Hampstead, N.W. *Councillor.*
1891. Watson, W. Spencer, F.R.C.S., 60, Queen Anne-street, Cavendish-square, W.
1889. Waugh, Henry Dunn, M.D., 6, Sumner-place, Onslow-square, S.W.
1884. Webb, F. Ernest, M.R.C.S., 113, Maida-vale, W.
1896. Weber, Frederick Parkes, M.D., 19, Harley-street, W.
1889. Weber, Hermann, M.D., 10, Grosvenor-street, W.
1887. Webster, Henry William, M.D., St. George's Infirmary, Fulham-road, S.W.
1838. *Wells, John Robinson, F.R.C.S., 4, Pierrepoint-road, Acton, W. c 2.
1884. West, Samuel, M.D., 15, Wimpole-street, W. s 2, c 4, cfc.
1889. Wethered, Frank Joseph, M.D., 83, Harley-street, W.
1892. Wheaton, Samuel Walton, M.D., 76, The Chase, Clapham Common, S.W.
1882. Whipham, Thomas T., M.D., 11, Grosvenor-street, W. sm, c.
1884. Whistler, William MacNeill, M.D., 18, Wimpole-street, W.
1889. White, E. F., F.R.C.S., Westlands, 280, Upper Richmond-road, Putney, S.W.
1868. White, Joseph, F.R.C.S. Edin., D.C.L. Durh., 6, Southwell Gardens, Queen's Gate, S.W. c 2. *Councillor.*
1880. *White, William Henry, M.D., 43, Weymouth-street, W. c. 3.
1885. White-Cooper, George Owen, M.B., 5, Courtfield-road, S.W.
1883. Whitehead, Walter, F.R.C.S. Edin., F.R.S.E., 499, Oxford-road, Manchester. c.
1885. Whitla, William, M.D., 8, College-square North, Belfast, Ireland.
1877. Whitmore, William Tickle, F.R.C.S. Edin., 7, Arlington-street, Piccadilly, W.
1872. Williams, Charles Theodore, M.D., 2, Upper Brook-street, Grosvenor-square, W. p, vp 2, ll, s 2, sm, o, l 3, c 9.

1876. Williams, Henry William, M.D., Hillside, Guilsborough, Northampton.
1883. Williams, Sir John, Bart., M.D., 63, Brook-street. c 3.
1883. Willis, Arthur Keith, M.A. Oxon., Gascony House, West End-lane, N.W. c. *Councillor.*
1881. Wills, Caleb Shera, C.B., Brigade Surgeon, Lunecliffe, Lancaster.
1873. Wills, Thomas Munns, F.R.C.S.I., J.P., 44, Merton-road, Bootle, Liverpool.
1893. Wills, William Alfred, M.D., 29, Lower Seymour-street, W.
1892. Wilson, Claude, M.D., Belmont, Tunbridge Wells.
1884. Winslow, H. Forbes, M.D., 14, York-place, Portman-square, W.
1873. Winslow, Lyttleton Stewart Forbes, M.B., D.C.L., 33, Devonshire-street, W. c.
1876. Woakes, Edward, M.D., 78, Harley-street, W.
1886. Wood, T. Outterson, M.D., 40, Margaret-street, Cavendish-square, W. c 3.
1873. Woodhouse, Robert Hall, M.R.C.S., 1, Hanover-square, W.
1891. Woollett, Charles Jerome, F.R.C.S., "Ambleside," Streatham, S.W.
1884. Wyman, William Sanderson, M.D., Red Brae, Putney-hill, S.W. c 2.

1891. Yarr, Michael Thomas, Surgeon-Captain, Medical Staff, 4, Grafton-street, Piccadilly, W.
1884. Yeo, I. Burney, M.D., 44, Hertford-street, Mayfair, W.
1897. Young, Adam, M.R.C.S., 2, College-crescent, South Hampstead, N.W.
1897. Young, Williams H. Frome, M.R.C.S., Malcolm Corner, Worple-road, Wimbledon.
1884. Younger, Edward George, M.D., 19, Mecklenburgh-square, W.C.

## NON-SUBSCRIBING FELLOWS.

1868. Bateman, Sir Frederic, M.D., J.P., Upper-street, Giles-street, Norwich.
1872. Bell, John Hougham, M.D., Ventnor, Isle of Wight.
1868. Buckle, Fleetwood, M.D., Staff Surgeon R.N., Merton Lodge, Southsea.
1868. Child, Edwin, New Malden, Surrey.
1870. Clouston, Thomas Smith, M.D., Royal Asylum, Morningside, Edinburgh. FM 1870.
1868. Folker, William Henry, F.R.C.S., Hanley, Staffordshire.
1869. Foster, Sir Walter B., M.D., M.P., 14, Temple-row, Birmingham.
1868. Fox, Charles Henry, M.D., 32, Rutland-square, Edinburgh.
1868. Gaine, Charles, 30, Gay-street, Bath.
1871. Glynn, Thomas Robinson, M.D., 62, Rodney-street, Liverpool.
1868. Knaggs, Samuel, 2, Bradley-lane, Huddersfield.
1869. Lees, Charles Alexander, M.D., Dep. Inspector-General, R.N.
1869. Lipscomb, John Thomas Nicholson, M.D., St. Albans, Herts.
1869. Mathews, Robert, Bickley, Kent.
1871. Maurice, Oliver Calley, 75, London-street, Reading.
1868. McIntyre, John, M.D., LL.D., Odiham, Hants.
1868. Nevins, John Birkbeck, M.D., 3, Abercromby-square, Liverpool.
1871. Ogle, William, M.D., The Elms, Derby.
1869. Philipson, George Hare, D.C.L., M.D., J.P., 7, Eldon-square, Newcastle-on-Tyne.
1869. Price, William Preston, M.D., 1, Ethelbert-crescent, Margate.
1869. Prior, Charles Edward, M.D., 4, Goldington-road, Bedford.
1869. Roberts, Bransby, M.D., Ash Grove, Eastbourne.
1871. Sloman, Samuel George, Farnham.
1869. Stear, Henry, Saffron Walden, Essex.
1869. Taylor, Charles Bell, M.D., 9, Park-row, Nottingham.
1869. Walker, John Swift, M.D., Hanley, Staffs.
1869. Webster, Frederick Richard, St. Albans, Herts.
1868. Wiblin, John, F.R.C.S., Wimborne, Dorset.

*** As it is very desirable that the foregoing Lists should be kept as accurately as possible, Fellows are requested to send notice of any corrections that may be necessary to the Secretaries or to the Registrar.

# GENERAL MEETING.

*May* 10*th*, 1897.

Reginald Harrison, Esq., F.R.C.S., President, in the Chair.

*Report of the Council for the Session* 1896–97, *presented at the General Meeting of the Society, held May* 10*th*, 1897.

The Council during the past year has had little but ordinary business to perform.

The total number of Fellows is now 764, showing a decrease of 10 as compared with last year. During the Session 22 Ordinary and five Honorary Fellows have been elected. The names of the latter are :— Professors Paul Berger and Felix Guyon, of Paris, E. von Bergmann, of Berlin, Sir William Hingston, M.D., and Dr. T. G. Roddick, of Montreal.

There have been 14 resignations, and eight Fellows have been struck off the list for non-payment of subscriptions.

The Council regrets to report that 15 Fellows have died. Amongst these are the following names :—Sir George Murray Humphry, Professor of Surgery in the University of Cambridge, an Honorary Fellow who was Orator in 1885 ; Sir Russell Reynolds, President of the Royal College of Physicians, London, who had served on the Council for three years ; Sir Benjamin Ward Richardson, a Past President and Fothergillian Medallist, who always took the deepest interest in the Society ; Dr. C. H. Ralfe, who was a Councillor at the time of his death ; Dr. Langdon-Down, a Past Vice-President and Lettsomian Lecturer ; and Messrs. P. Y. Gowlland, Leopold Hudson, and W. E. Stewart.

The Oration was given by Dr. W. H. Allchin, the Honorary Librarian, who took as his subject, "The Breaking Strain."

The Lettsomian Lectures on "Diseases of the Nose and Throat in Relation to General Medicine" were given by Dr. de Havilland Hall.

Mr. William Adams, a former President, has presented to the Society a marble bust of himself.

The List of Corresponding Fellows, which is much out of date, requires careful revision, and this duty is being performed by the Honorary Secretary for Foreign Correspondence.

The papers read during the Session have been such as to fully maintain the reputation of the Society, and its best thanks are due to the authors.

In conclusion, the Council desires to congratulate the Fellows on the thoroughly satisfactory condition of the Medical Society of London.

*Report of the Hon. Librarian for the Session* 1896–97.

I have the honour to report that during the past year 59 volumes have been added to the Library, 34 by presentation from authors and publishers and 25 by purchase from the Fothergillian Fund.

The usual donation of £10 from the Society has been expended in the repair and re-binding of old books—an amount which but slightly diminishes the large requirements in this direction. It is estimated that a considerable sum would be required to complete this restoration of the old volumes only, many of which are of great value, and the Council has appointed a Sub-Committee which will consider this matter, and report.

The Card Catalogue of the works of the Fifteenth and Sixteenth Centuries is now complete, thanks, in great measure, to the labours of Mr. Hall, whose claims on the thanks of the Society are yearly increasing.

The Library continues to be more made use of by the Fellows, though scarcely as much as might be expected. It still appears to be generally unknown that books may be taken out.

(Signed) W. H. Allchin,
*Hon. Librarian.*

*April* 30*th*, 1897.

*Report of the House and Finance Committee for the Session* 1896–97.

The Committee has to report that the Society's premises are in a good state of repair; that the income from regular tenants and occasional lettings shows an increase of £10 on the previous year; and that two Debenture Bonds have been drawn and paid off since the date of the last Report.

D. H. Goodsall,
*Chairman.*

*April* 30*th*, 1897.

## MEDICAL SOCIETY

DR. BALANCE SHEET, FROM 1ST OCTOBER,

RECEIPTS.

| | £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| Balance from Last Account .. .. .. .. .. .. | | | | 79 | 4 | 7 |
| *Ordinary*— | | | | | | |
| Subscriptions .. .. .. .. .. | 509 | 5 | 0 | | | |
| Entrance Fees .. .. .. .. .. | 19 | 8 | 6 | | | |
| Life Composition Fees .. .. .. .. | 15 | 15 | 0 | | | |
| Rents { Bolt Court (less expenses) | £78 | 12 | 3 | | | |
| Rents { Chandos Street .. .. | 656 | 15 | 6 | | | |
| | 735 | 7 | 9 | | | |
| Contributions for use of Rooms .. .. .. | 37 | 19 | 6 | | | |
| Sale of 'Transactions' .. .. .. .. | 3 | 15 | 0 | | | |
| | | | | 1,321 | 10 | 9 |
| | | | | £1,400 | 15 | 4 |

## FOTHERGILLIAN

| | £ | s. | d. |
|---|---|---|---|
| Balance from Last Account .. .. .. .. .. .. | 34 | 18 | 5 |
| One Year's Dividend on £916 10*s.* 5*d.*, 2¾ % Consols .. .. | 25 | 4 | 0 |
| | £60 | 2 | 5 |

Examined, compared with vouchers, and found correct,

# OF LONDON.

1896, TO 30TH SEPTEMBER, 1897. CR.

EXPENDITURE.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Ordinary*— | | | | | £ | *s.* | *d.* | £ | *s.* | *d.* |
| Rent, 11 and 12, Chandos Street | | | | | 290 | 0 | 0 | | | |
| Rates, Taxes, and Insurance | | | | | 150 | 18 | 5 | | | |
| Registrar's Salary and Allowances | | | | | 113 | 14 | 0 | | | |
| Collector's Poundage on Subscriptions | | | | | 25 | 9 | 3 | | | |
| Reporter's Salary | | | | | 22 | 1 | 0 | | | |
| Stationery and Printing | | | | | 12 | 13 | 4 | | | |
| Printing and issuing 'Trans.,' Vol. xix | £166 | 4 | 3 | | | | | | | |
| Less Payment by Mr. Watson Cheyne towards cost of "Tables" | 11 | 11 | 10 | | | | | | | |
| | | | | | 154 | 12 | 5 | | | |
| Library Expenses | | | | | 15 | 12 | 2 | | | |
| Postage | | | | | 10 | 19 | 9 | | | |
| Coals and Wood | | | | | 10 | 0 | 8 | | | |
| Gas and Electric Supply | | | | | 45 | 9 | 8 | | | |
| Repairs | | | | | 11 | 16 | 0 | | | |
| Interest on Debentures | | | | | 134 | 13 | 10 | | | |
| Conversazione | | | | | 45 | 0 | 0 | | | |
| Refreshments at Meetings | | | | | 12 | 17 | 6 | | | |
| Hire of Microscopes | | | | | 1 | 14 | 0 | | | |
| Band at Anniversary Dinner | | | | | 8 | 8 | 0 | | | |
| Banker's Charges (5*s.* 6*d.*), Sundries (7*d.*) | | | | | 0 | 6 | 1 | | | |
| Wages | | | | | 47 | 2 | 6 | | | |
| Chandlery and Cleaning | | | | | 14 | 18 | 4 | | | |
| | | | | | | | | 1,128 | 6 | 11 |
| *Extraordinary*— | | | | | £ | *s.* | *d.* | | | |
| Balance of Builder's Contract | | | | | 10 | 0 | 0 | | | |
| Three Stoves in Meeting Room and Hall | | | | | 24 | 14 | 6 | | | |
| Completing Fireplace in Library | | | | | 7 | 9 | 6 | | | |
| Redemption of Two Debentures | | | | | 200 | 0 | 0 | | | |
| | | | | | | | | 242 | 4 | 0 |
| Balance at Bank, 30th September, 1897 | | | | | | | | 30 | 4 | 5 |
| | | | | | | | | £1,400 | 15 | 4 |

FUND.

| | £ | *s.* | *d.* |
|---|---|---|---|
| Books Purchased for Library | 13 | 8 | 0 |
| Balance at Bank, 30th September, 1897 | 46 | 14 | 5 |
| | £60 | 2 | 5 |

October 2nd, 1897. (Signed) D. H. GOODSALL, *Treasurer.*

October 5th, 1897. (Signed) FREDERIC DURHAM, LEONARD G. GUTHRIE } *Auditors.*

TRANSACTIONS

OF THE

MEDICAL SOCIETY OF LONDON.

124TH SESSION.

*October* 12*th*, 1896.

# ADDRESS ON THE TREATMENT OF SOME FORMS OF ALBUMINURIA BY RENI-PUNCTURE.

By the President, REGINALD HARRISON, F.R.C.S.

## KIDNEY TENSION AND ALBUMINURIA.

EARLY this year, in connection with some observations I published* on kidney tension relative to albuminuria, I narrated the particulars of three cases in which albuminuria of some standing completely and, I believe, permanently disappeared after the digital exploration and puncture or division of the kidney capsule was practised. I will briefly refer again to these cases, together with some others to which my attention has since been called as bearing upon the point to which I desire to direct your attention on this occasion.

It is, however, only right to state that my cases were all instances where the kidney was explored and punctured, or incised, not with the intention of treating an albuminuria, but with the object of discovering some other coexisting morbid condition which, though previously suspected, was not on exploration found to exist. I regret that only scanty notes were kept at the time of these and some other cases to which I might have referred, arising from the fact that in the absence of what was more directly sought for, the existing conditions were insufficiently

* 'Lancet,' Jan. 4th, 1896.

appreciated, whilst the good results accruing appeared at the time either unexplainable, or were referred to local states, such as the accidental fixation of a movable kidney, the division of a disordered nerve, or the moral effects of an operation. It was not until several instances had come under my notice in this way that I began to suspect that a different explanation for the total disappearance of one symptom of disease at least might with some degree of reason be offered. My cases are briefly as follows:—

Case I.—In 1878 I cut down on the kidney from the loin in a youth aged 18, expecting to find a suppuration either within or around the organ. The patient was suspected to have had scarlet fever three weeks before this was done, and had since suffered from intense lumbar pain. He had had a slight rash, some desquamation, a sore throat, and albuminous urine with casts. I undertook the operation with some hesitation, and limited my incision so as just to enable me to put my finger on the kidney. It felt so tense that I extended my incision and opened it with confidence, expecting to find matter. This was not the case, and I closed the proceeding with the feeling that I had made an error in diagnosis. There was a full discharge of blood and urine from the wound for some days. The latter was lightly plugged with lint, and in the course of 10 days or so healed soundly. After the incision was made the excretion of urine became far more abundant, and the albumen gradually and completely disappeared.

Case II.—In 1887 I operated upon a man, aged 50 years, who by nature of his occupation spent a large amount of his time underground. Occasionally he suffered from hæmaturia in conjunction with colicky pains about the groins, and I came to the conclusion that he was suffering from renal calculus. As, however, the symptoms were neither urgent nor confined to one kidney, the consideration of operation was postponed. In the course of a few months after I first saw him, and whilst he was continuing his work underground, the urine became largely and constantly albuminous, and there was some pain referred to the right loin. I took him into the Royal Infirmary at Liverpool, where I was then residing, and explored the right kidney. The organ was found to be enlarged and tense. An incision of an inch in length was made through the cortex, and the pelvis was explored with the finger, but after careful examination no stone could be found. There was a considerable discharge of blood and urine, which continued for a fortnight or so, a drainage tube being retained in the wound; on the withdrawal of the latter, healing followed, and the urine became quite normal. I heard some time afterwards that the patient remained in excellent health, and was able to resume his ordinary occupation.

Case III.—This case is one that came under my observation in 1893. It was that of a woman, aged 44, who had suffered from slight hæmaturia at times for a year previously; occasionally the urine was albuminous. Shortly after I saw her she had a severe attack of influenza, which was followed by an aggravation of her renal symptoms. She complained of

pain on pressure over the left kidney, and the albumen not only increased in quantity, but was constantly present in the urine. As she believed she had passed a small calculus some months previously, I thought it a proper case for exploration, and this was accordingly made. The late Mr. Durham saw the patient in consultation with me. The left kidney was found to be swollen and very tense. It was opened and explored with the finger, but no calculus could be discovered. There was a free drain of urine, with some blood, which continued for about a fortnight, when the wound closed. The patient is now quite well, and the urine normal.

Looking at the three cases I have briefly related, I believe that the first was scarlatinal nephritis, the second nephritis from exposure to cold and damp, and the last subacute nephritis following most probably upon influenza. Amongst other features, each case was characterised by the presence of albumen in the urine, which I am inclined to attribute to previous inflammation or its immediate effects.

Since these cases were published, Newman, of Glasgow, has recorded two others where albuminuria ceased after the performance of an operation for fixation of the kidney. The cases are thus epitomised * :—

Case A.—Right movable kidney, causing torsion of the ureter and leading to hydronephrosis, albuminuria, and tube casts in the urine. With the onset of paroxysms of pain, hydronephrosis was sometimes present; sometimes it was absent or not observable, but was attended by high specific gravity of the urine and albuminuria, and tube casts always appeared in the urine at the same time as the pain. Since the operation no albumen or tube casts had been found.

Case B.—Left movable kidney causing torsion of renal blood vessels, albuminuria, tube casts, severe pain, and suppression of urine. There was no hydronephrosis, and operation was succeeded by recovery. The kidney was only freely movable, but no increase in size could at any time be made out. Commenting on these cases, Dr. Newman observes : "In the cases of occasional hydronephrosis, the presence of albumen and tube casts was more difficult to explain. Why did the transient passive hyperæmia lead to the presence of tube casts, the occurrence of which physicians were in the habit of regarding as of grave import and an indication of inflammatory trouble?"

Both of these cases appear to me to have an important bearing both upon the pathology and treatment of albuminuria. I am indebted to Dr. Hoeber, of Homburg, for the following particulars. He writes :—

"I have seen a very similar case to those you describe, about

* Clinical Society of London. 'Lancet,' Jan. 18th, 1896.

two months ago. A man of about 36 years of age, very strong and otherwise perfectly healthy, got, after an attack of influenza which did not appear very severe, most intense pain in the right lumbar region associated with slight albuminuria. As the pain lasted over a fortnight, and yielded to no kind of treatment, I sent the patient to a surgeon with a diagnosis of probable renal suppuration, particularly as there was slight feverishness. The incision brought a considerable discharge of blood, but no pus. The patient became rather anæmic, but lost the feverishness and albuminuria at once, and has had no return since."

### Surgical Treatment of Kidney Tension.

From a careful consideration of these cases I do not think it is possible to avoid arriving at the conclusion that the disappearance of albumen from the urine was directly connected with the surgical treatment to which in each instance one of the kidneys was submitted. That the organs were in a state of tension, in one class of cases as the result of inflammatory hyperæmia, whilst in the other from mechanical vascular obstruction, seems also to be a conclusion which is equally irresistible. Referring to the hyperæmia which exists in the initial stages of nephritis, Sir T. Grainger Stewart observes*: "Albuminuria is very often due to changes of an inflammatory character in the tubules and in the stroma of the organ, and in a very large proportion of the cases in which it occurs in practice it is dependent on this cause." That the changes which subsequently ensue as a consequence of nephritis, however commencing, by the substitution of a lower for a higher excretory tissue, as we see in the cirrhosed forms of Bright's disease, is due to the damage the organs received in the early and active stage of inflammation or congestion, seems by no means improbable. Sir Thomas Watson observed in his lectures, "The stress or congestion which befalls the kidney in cases of febrile anasarca may set on foot a morbid process that long works silently and unobserved, but at last declares its operation by symptoms."

Nor is there wanting evidence as to the high state of tension which is sometimes present in the kidney. I have frequently called attention to this at the time of operation for exploration of

* 'Lectures on Albuminuria,' 1888.

one of these organs. In one instance the degree would resemble that of a ripe or almost bursting plum, whilst in another the kidney was comparatively flaccid and unresisting on pressure with the finger. Yet these differences were not always at the time explainable.

That the relief of renal tension by direct surgical interference has been proved to be practical, and is under certain conditions indicated, is also supported by the cases I have cited. Surgeons have long learnt to recognise the disastrous and far-reaching effects of tension as it occurs in the human body whether arising from inflammation or otherwise, and do not hesitate to negative any evil effects it may give rise to by means which render this very unlikely to happen.

Possibly my surgical experience has led me to exaggerate the disastrous effects of tension on the tissues of the body, though for the most part it has been gained in regions which may be said to be less highly organised and delicate than the excreting apparatus of the kidney. It certainly seems somewhat remarkable at the present day that so many different views exist, or have been put forward, explanatory of the process by which albumen exudes so as to form a variable part of the urinary excretion. These various theories I shall not attempt to discuss in detail or to reconcile.

## Analogies from the Eye and Testicle.

I may briefly remind you of two analogous conditions. In the eye the most disastrous effects of intra-ocular tension are seen in "glaucoma." The recognition of the true pathology of this affection and the adoption of mechanical treatment by iridectomy or an allied operation for the removal of tension and the prevention of the degenerative changes thus initiated, as first practised by Von Graefe, at once resulted in the saving of a large number of eyes which previous to this discovery would undoubtedly have been lost.

In the testicle when it becomes inflamed we have not infrequently transient as well as permanent evidence of the damage that inflammation and tension are capable of bringing about in an organ which, relative to its secreting and investing structures, bears a resemblance to the kidney. The late Mr. Henry Smith was the first to draw attention to certain advantages that followed

puncture or limited incision through the capsule of the testicle in acute forms of orchitis. It was alleged, and I believe with a considerable amount of truth, that not only was the pain of tension in this way immediately relieved, but that permanent damage to the secretory structure of the testis was averted. In fact sterility, so far as the organ involved was concerned, was by this means rendered unlikely to occur.

### The Structure of the Kidney in Relation to Tension.

The kidney may be said to be a highly organised gland surrounded by a thin fibrous capsule, and divided up into compartments or sections by barriers of a similar nature. It is capable of distension to almost any degree by a gradual force acting from within, as, for instance, the retrograde pressure proceeding from strictures which oppose the escape of its excretion, but from the nature of its structural constituents is incapable of adapting itself to sudden emergencies of this kind, as those usually arising in connection with the early stages of acute nephritis.

Assuming, however, that the means I have thus suggested for dealing with intrarenal tension, under circumstances to which I will presently refer, are applicable, it may be urged that as the kidney, as normally disposed, is a double organ, both glands must be directly submitted to the proceedings proposed, inasmuch as in the ordinary form of nephritis both kidneys are usually similarly involved. This, however, does not necessarily follow, as the sympathies existing between the two organs are such as to cause impressions exercised upon one to be reflected on the other. Relief afforded to one kidney, as my cases illustrate, usually assists the other, whilst when the excretory power on one side is suspended or arrested, the opposite organ speedily takes up the whole of this work.

I might illustrate this point further in a variety of ways. The following case, however, seems to me to directly bear upon it:—

It was that of a man, aged 30, whom I saw early in 1889, 10 days after he had received an injury to his loins by falling down the hold of a ship and alighting on a case of goods. The right loin was ecchymotic, and from the presence of a little blood in the urine, which continued for some days after the injury, it was concluded that either one or both kidneys had been severely

contused. The daily amount of secretion was considerably diminished, and the day I saw him it had only amounted to 16 ounces in the 24 hours. There was pain on pressure over the right loin, which remained swollen, discoloured, and tender to the touch, and the temperature had risen and was variable. I thought it probable that perirenal suppuration had occurred. I therefore exposed the right kidney from the loin, and removed some extravasated blood in the course of the incision. The kidney was found very tense and congested. I believed that suppuration had taken place within it, and therefore a small exploring trocar was inserted in two or three places, but without discovering pus. Further, at one point where it was very tense I made an incision into the cortex, but only blood and serum escaped. Considering that we had thus got rid of some of the products of the injury which were on the verge of suppuration, the wound was lightly packed with antiseptic lint and left open; there was a free discharge of blood and some urine for some days after, and all the symptoms which rendered the incision desirable were at once relieved, and the patient made a good and complete recovery.

It was interesting to notice that the excretion of urine was more than doubled in the 24 hours following the operation, and the daily amount now remained normal throughout. Here the tendency towards suppression of urine was evidently connected with the intense congestion resulting from the injury in which probably both organs were involved, a condition of the circulation which was at once removed by the treatment described. We do not, I think, sufficiently recognise the high degree of vascular and tubular infarction that attends some grades of nephritis.

Some years ago I saw a girl, aged 7, who was suffering from scarlet fever of a malignant type. Almost complete suppression of urine was the leading feature in the case, and death took place in four days from the commencement of the illness. At the necropsy the kidneys were found to be so highly congested that I was not surprised at their being unable to excrete. I remember the passing impression arising in my mind that an incision into them appeared to be the only means that might have been effectual in restoring their function.

In a recent paper on Scarlatinal Nephritis and its Varieties,

Dr. Meadows Turner* remarks: "Out of the 5,109 cases, 55 died with nephritis, either alone or complicated with other lesions. This number includes those who presented some symptoms during life, as well as some others in whom *post mortem* extensive disorganisation of the kidney was found, though during life there were no sufficient symptoms for diagnosing such a complication."

### Cases in which Reni-puncture may do Good.

I will now endeavour to indicate the kind of cases of nephritis where it may seem desirable to adopt the practice I have illustrated. In resorting to such measures we cannot entirely, as I have already stated, lose sight of the fact in connection with the subject of albuminuria that its treatment as it at present stands cannot be regarded as entirely satisfactory or progressive. Commenting upon this point, Sir Grainger Stewart, one of our most modern writers on the subject, and whom I had the advantage of conversing with a short time ago in reference to the point that is now before us, observes: "Sir William Roberts and Professor Rosenstein have come to the same general conclusion as Dr. Saundby as regards the inefficacy of drugs in diminishing albuminuria, and I have satisfied myself by a long series of careful observations that we have no right to credit any drug with the power of directly diminishing the discharge of albumen."

The grounds upon which it may be desirable to give relief by surgical means directly applied to the kidney may be illustrated by some of those cases of nephritis which are seen as consequent on scarlet fever, though it seems to me that their application is not necessarily limited to these. In the larger proportion of cases of scarlatinal nephritis the kidney complication is only of a temporary character, and the disappearance of albumen from the urine is both gradual and complete. Under such circumstances surgical interference could not be regarded as warrantable. On the other hand, there are a considerable number of cases met with where this is not so. These may be ranged into two groups. The first includes those instances where the kidney complication is from the onset of the gravest nature, and death is imminent with more or less suppression of urine, as in the case I have previously referred to, where after death the kidneys were found in a

* 'Guy's Hospital Reports,' 1894.

condition of most intense vascular engorgement. In these cases a fatal issue usually ensues most rapidly, the duration of life being largely determined by the degree of suppression that is arrived at.

The second group of cases includes those where after a limited time the tendency, so far as the renal symptoms are principally concerned, is not in the direction of recovery. The amount of albumen does not decrease, tube casts as well as other evidences of disorganisation are found in the urine, and the latter in quantity is below that which may be regarded as an average. Though a physical examination of these organs, either from the loin or by abdominal manipulation, may fail to give any indication as to their condition, tenderness on pressure is often complained of. It is from amongst the cases represented in these two groups that instances will be found where I believe the measures advocated may sometimes be advantageously practised. It is in these instances that death either rapidly occurs or is brought about no less surely in the course of time by the more chronic forms of nephritis in conjunction with the cardiac complications which so frequently arise in connection with them.

That many cases of nephritis with high tension and subsequent structural deterioration must necessarily be attended with cardiac hypertrophy or enlarged powers of circulation is at once obvious. Diminished capacity to excrete can only be compensated for by increase in the force of the blood current. In the restoration of function we have the only safeguard against the development of this complication.

In conclusion I will offer a few remarks on the precise nature of the surgical treatment of renal tension associated with albuminuria. It is hardly necessary to remind you that by anæsthetics and the antiseptic treatment as developed by Sir Joseph Lister we are now in the position, not only of exploring various organs of the body with perfect safety, but further we are enabled by these means to study what I would speak of as living pathology. It would not be possible for me to illustrate the truth of this observation more vividly than in the case of renal disease. Here by anæsthetics in combination with antiseptics a vast number of diseases have been brought, not only within reach of surgery, but with a degree of success which previously would have been unattainable. The operation of exploring a kidney by an incision

from the loin, so as to enable the operator to examine this organ carefully and deliberately with the finger, and, if found necessary, to proceed further, has now been so safeguarded as to remove from the mind of any careful surgeon undertaking it the feeling that he is exposing his patient to any undue risk relative to the reason that is judged to demand it. I cannot say that I ever saw any ill result follow the exposure of the kidney by an incision from the loin for the purpose of its digital exploration. On the other hand, we have seen in numerous directions the necessity for such a proceeding in many cases where, though recovery followed, a correct diagnosis had not previously been arrived at. Such instances include the presence of pus or fluid within the kidney, morbid growths requiring the removal of the organ, stones, undue mobility, and other abnormal conditions.

In the class of cases I am now referring to the kidney should be exposed by a moderate incision from the loin, so as to enable the operator to feel the organ distinctly both in front and behind, aided of course by pressure exercised on the kidney by the hand of an assistant from the front of the abdomen. If in conjunction with the presence of albumen in the urine the kidney is found in a state of tension, such as I have illustrated, three or four punctures may be made through the capsule in various directions; or should the organ be found in a higher state of tension, then a limited incision into the cortex may be practised. After one or other of these measures have been adopted, the wound should be lightly packed with gauze or a drainage tube substituted. In either case the incision should be dressed in such a manner as to provide for the free escape of either blood or urine, or whatever products may be exuded. For this practice I venture to think some reason will be found in the illustrations which have formed the text for my observations this evening.

# TWENTY-SIX CASES IN WHICH AN ABDOMINAL SECTION HAS BEEN PERFORMED A SECOND TIME.

By John D. Malcolm, M.B., C.M., F.R.C.S. Edin.

In this paper I include every case in my practice in which an abdominal section has been performed a second time,† with the exception of six cases already recorded.‡ I have selected these cases for publication together because their histories illustrate a considerable number of complications, accidents, and causes of death which may occur in abdominal surgery, and because very few of them are without special points of interest. The cases may be divided into three groups. In the first eight the second operation was performed on account of a return of disease after a period of good health. The second group consists of five cases in which the first operation was insufficient to effect a cure. In the remaining 13 cases the second operation was required on account of some complication arising as an immediate or a remote consequence of the first.

In eight of the cases I performed both operations. In the others the second operation only was performed by me.

Group I.§—The first three cases were examples of the growth of an ovarian tumour in the second ovary after the removal of an ovarian tumour. In Case No. 1* I performed both operations. On the first occasion I removed a tumour of the left ovary, but I could not find the right ovary. There was an abnormal mass about the size of a walnut attached to the back of the abdominal wall, apparently quite unconnected with the pelvis. I was

† The operation of paracentesis abdominis has not been considered an abdominal section, although it might be maintained that the abdominal cavity is opened thereby.

‡ Illustrations of some modes of death from ovariotomy, 'Medical and Chirurgical Transactions,' vol. 78.

Two cases of rupture of intestine caused by the separation of adhesions to diseased ovaries. 'Lancet,' Sept. 26th, 1896.

Cases of liver and gall duct surgery. 'Transactions of Medical Society,' vol. xviii.

§ In the cases marked with an asterisk (*) I performed both operations.

uncertain as to the nature of this, but it did not appear to be malignant, and I decided not to remove it. Nearly four years later the abdomen somewhat rapidly increased in size, and a large cystic growth developed. It had grown in the abnormal mass attached to the back of the anterior abdominal wall. A careful examination during the second operation failed to show the right ovary in its natural position, and the case appears to have been an example of the condition in which the ovary becomes completely separated from its normal connections, probably by twisting, and is nourished by adhesions in its abnormal position. The patient is alive and well.

In the second and third cases there were very numerous adhesions at the second operations, and both patients very nearly died of obstruction of the bowel during convalescence. Case No. 2 is alive. The third patient died of pneumonia at the age of 65, nearly five years after the second operation, and nearly 11 years after the first.

In the fourth case I was told that an ovarian cystic tumour had been removed by another surgeon three and a half years before I saw the patient. I diagnosed a second cystoma, but, on opening the abdomen, I found a very large collection of ascitic fluid, partially encysted by peritoneal adhesions which matted the intestines together. The left ovary and tube were absent. The right appendages were dotted over with a granular growth which might have been either tubercular disease or papilloma. I removed the ovary and tube, and the patient made a good recovery. She has suffered from constipation and delicacy of the lungs since the operation, but her health improved greatly after she made her home in a more southerly climate. I regret that the specimen removed was not examined with the microscope.

In the fifth and sixth cases it was supposed that both ovaries had been completely removed for neoplasms before the patients came under my care. In each case I was informed of this by the gentleman who had operated. Nevertheless I performed in each case an operation in no way differing from an ovariotomy with deep enucleation of the growth, except that the Fallopian tubes were absent. Case No. 5 is quite well, but I think she has a small hernia in the scar, which, however, I have not had an opportunity of examining. In Case No. 6 there is a very small sinus from which some silk ligatures have been protruded. The

tumour removed was very multilocular, with viscid contents and numerous adhesions to all the surrounding tissues. After the operation a large collection of blood formed and burst through the lower angle of the wound on the tenth day. More than half a pint of dark red fluid of the consistence of syrup escaped in 24 hours, and then the discharge became very scanty. I expect that many of the very numerous ligatures applied to divided adhesions will escape before the wound finally heals. At the present time there is an opening the size of the finest pin head, practically without discharge and causing no irritation. In every other respect the patient could not be in better health. It is nearly nine months since the second operation. (Since this paper was read the wound has completely healed.)

These two cases show a local recurrence of an ovarian growth, probably springing from a piece of ovarian tissue or a piece of growth inadvertently left behind at the first operation. Such cases are rare, but others are on record. The condition is in marked contrast to the secondary development of malignant disease which took place in Case No. 7,* in which I performed a fairly easy ovariotomy on June 6th, 1893. There were a few slight pelvic adhesions, and I noted that there was some solid tissue in the tumour. The patient made an uncomplicated recovery and continued in good health until October, 1895, when she began to suffer from an increasing difficulty in keeping the bowels open. I saw her on January 26th, 1896, and she then had an almost complete intestinal obstruction with abdominal distension, much pain and constant vomiting. I thought that there might be a simple obstruction, but the slow onset of the mischief and a small hard nodule behind the cervix uteri made me suspect the presence of malignant disease. I recommended an exploration with the formation of a fistula to relieve the vomiting and the pain due to peristaltic efforts, if no more effectual treatment should be possible. The peritoneum was found studded over with numerous cancerous nodules, about the size of small peas, and I therefore opened a coil of gut as low down as possible. The operation was successful in relieving pain, and, when the abdominal distension had subsided, Dr. Adams, of Ipswich, under whose care the patient was, found large masses of growth below the liver. Death from exhaustion took place a month later.

Case No. 8 might be put in the second group of cases in which the first operation did not effect a cure, but I place it in the first group inasmuch as the patient had nearly nine years of good health after the first operation. The gentleman who operated in 1885 informed me that he had found an ovarian tumour so thin walled and so deeply embedded in the broad ligament that he thought it wise to drain the tumour instead of removing it. When I opened the abdomen nine years later, I found a multilocular very thin walled cystoma of the right ovary, extending as high as the navel and commencing disease of a similar nature on the left side. I had no difficulty in removing both neoplasms completely. It is now two years since the operation, and the patient is stout and well, nothing abnormal being palpable in the pelvis. The case shows the very great changes which may take place in the relations of an ovarian tumour, for there was no difficulty whatever in completing the operation in 1894, whereas a most able and experienced surgeon had thought it best to leave the operation incomplete in 1885.

In the foregoing cases I did both operations in only two instances, the first and seventh. Death was not caused by the operation in any of these cases, and six of the patients are alive and well.

Group II.—In the following five cases the first operations failed to effect a cure. In each instance I performed the second operation only, and there were two deaths.

In Case No. 9, the left ovary was removed in May, 1890, for the relief of inflammation accompanied by constant aching pain. The patient was much better for a very short time. After about two months the pain returned as bad as ever in the remaining ovary. The patient became so ill that, after consultation with the gentleman who had performed the first operation and with others, I removed the second ovary in March, 1891. For nearly a year after the second operation I frequently received letters from the patient asking me for advice, and saying that she was no better. After a year she began to improve, and last spring, in answer to my inquiries, she informed me that she only suffered from a bearing down sensation of comparatively little consequence.

In Case No. 10, the patient, a governess, dated her illness from 1881, when a horse which she was riding bolted with her. She

was not thrown and did not think she was hurt in any way, but she was much shaken and frightened. A few months later, being then 37 years old, she began to suffer from profuse, frequent, and painful menstruation. In 1885 she sought advice at one of our Metropolitan Medical Schools. She told me that something was removed through the vagina, but that no benefit resulted. Early in 1893 an abdominal section was performed by the obstetric physician to another London School. After this the patient could not get about at all. A profuse red discharge from the uterus continued for three or four weeks at a time, it was considered necessary to plug the vagina on several occasions, and the pain was so great that morphia injections were required almost daily.

After 10 months a ligature escaped from the vagina and there were subsequently repeated discharges of matter and blood. The gentleman who had operated told me that he had removed the left ovary, which contained a small dermoid tumour, and also the right ovary, but he was not sure if he had removed the latter completely. The notes, taken by a student, stated that there was no fibroid tumour of the uterus. I reopened the abdomen on March 22nd, 1894, and after separating many adhesions I removed the left Fallopian tube with a small nodule that was evidently the tied stump of the left ovary. Part of the right Fallopian tube also remained, and it was removed, together with that part of the broad ligament to which the ovary should normally have been attached. Two small pedunculate fibroids, the largest about the size of a walnut, were then tied off and cut away, and I noted that there were numerous other small fibroids in the uterine wall.

Convalescence gave no trouble. After the patient got up, uterine discharges continued at intervals till August, but now there was no blood in these discharges. I saw the patient in June, 1895. She then stated that she had been working 16 hours a day for 11 months as manageress of a boarding house, and was in the best of health, without any pain or discharge. A week before her visit to me she had wisely obtained lighter work. Obviously the arrest of the functions of the uterus was essential to a cure in this case, and this had not been effected at the first operation. In operating I adopted a plan since described by Dr. Penrose in the 'Annals of Surgery' for July, 1896, by which a much more thorough extirpation of the ovaries may be effected

than by the method I had previously used. The method consists of tying the broad ligament close to the uterus and also as far out as possible, removing the parts between, and securing separately any bleeding points in the lower untied portion of the broad ligament.

I adopted the same plan in Case No. 11. In this case the patient complained of a swelling in the abdomen and of having had much pain for six years. During that time she had attended a woman's hospital and had been an in-patient twice. In April, 1895, an abdominal section had been performed, and since that time the patient's health had been much worse than before, the pain had been more severe, and the periods had been very irregular.

On examining the patient I found extreme tenderness in the pelvis, which made it impossible to define the parts with certainty. The womb, however, seemed somewhat enlarged, and I detected two swellings—one the size of a Tangerine orange on the left side and a smaller one on the right, this last being much the more tender of the two. The woman was in a state of great exhaustion from constant suffering, and every examination caused excruciating pain which only subsided after two or three days. Her pulse was never below 120, and the temperature varied between 97·4° and 99° F. On June 1st, 1896, about 13 months after the first operation, I reopened the abdomen, and found that the fundus uteri was retroverted. The right broad ligament was also folded back, and behind it I felt a hard mass about the size of half a healthy ovary. This was adherent to the sigmoid flexure. On pulling up the broad ligament I opened a cavity between it and the bowel, and out of this cavity I squeezed a caseous-looking mass which on examination was found to consist of three interlocked silk ligatures. I removed the part of the broad ligament which had been in contact with these ligatures by the plan referred to in the last case, it being absolutely impossible to do so by the more ordinary method. The portion of the sigmoid flexure which formed the posterior wall of the cavity was carefully removed, and I sewed the edges together as if the bowel had been opened. The left ovary and tube, forming an inflamed mass about the size of a Tangerine orange and adherent to all the surrounding parts, were then separated and removed.

The patient died on the third day, with a high temperature and a feeble, rapid pulse. At the autopsy the wound looked very

unhealthy and showed no sign of union when the sutures were removed. There was no evidence of peritonitis, and there was no fluid in the peritoneal cavity except a few drams of blood-stained serum. The mucous membrane of the bowel had not been opened by the removal of the abscess wall from its peritoneal surface. I attribute this death to the severity of the operation and the exhausted and poisoned condition of the patient.

The silk ligatures which I removed were very much coarser than any I ever use.

In Case No. 12 a fibroid tumour was cut down upon by the patient's medical attendant in 1891, but the dangers of hæmorrhage were considered so great that nothing was removed. Afterwards a cystic tumour was tapped on several occasions, and in May, 1893, this cyst was opened and drained. Other tumours developed in the abdomen, and in July, 1894, the gentleman who had operated brought the patient to me for advice and further treatment. The patient was then 47 years old, and had ceased to menstruate. When I had made a careful examination, the patient and her friends were plainly told that an operation would involve unusual danger, but as the tumours were very large and partly cystic, I advised that they should be removed, and the patient decided to have this done, with the full approval of the gentleman who had performed the first operations.

Accordingly, on July 25th, 1894, I removed the following :—

(1) A large partly solid and partly cystic tumour occupying the right side of the abdomen as high as the costal margins. This tumour was attached to the right side of the fundus of the uterus, the point of attachment being almost as thick as my wrist. One of the cysts in this tumour had an opening by which it had been drained, and the growth was firmly attached to the abdominal wall over the whole of its anterior and right lateral aspects and also to the uterus and adjoining parts by very tough and vascular adhesions.

(2) The supra-cervical portion of the uterus, with a solid fibroid tumour the size of a cocoa-nut in its left wall.

(3) A very large cyst in the left broad ligament, springing from the side of the uterus, and rising well above the left costal margin, the peritoneum being reflected from it to the abdominal wall very high up in front and behind.

(4) A small solid oval tumour, about 3 inches long, growing

from the lower end of the left side of the womb, and extending downwards for some inches into the vascular tissue at the side of the vagina.

(5) The ovaries and Fallopian tubes.

On the right side the ovary and tube were in normal relations to the uterus, but the left appendages lay above the level of the umbilicus in the angle between the enlarged uterus and the cyst in the left broad ligament. Obviously, a great deal of enucleation was necessary on the left side, and the adhesions on the right side caused by the previous operations were so tough that their separation required a very difficult and prolonged manipulation.

After an operation lasting nearly three hours, the patient was put to bed in very fair condition; but she died 17 hours later, with symptoms which indicated that a ureter or the bladder had been injured. I did not think the latter could have been wounded, because, in separating it from the enlarged uterus, I had had a catheter passed as a guide until I thought I was working well behind the bladder. At the autopsy, however, an opening was found in the posterior wall of the bladder near its base. I can only offer a conjecture as to how and when the accident happened. I presume it must have been when I was enucleating the small solid tumour which was situated deeply in the cellular tissue to the left of the vagina. As I have said, I thought when I was enucleating this growth that I was working below the bladder, and I kept a keen look out for the ureter, which, however, I did not see. At this part the tissues were very vascular, and the catheter, used to define the position of the bladder, had also emptied it, so that I got no assistance from the sudden gush of urine that might otherwise have taken place. I now always use a sound and not a catheter if I wish to define the position of the bladder. I think that probably the left ureter was pressed low down by the tumour in the deep part of the broad ligament and that a portion of the bladder had been drawn down with it. The *post-mortem* report stated that the bladder was very large.

This accident was most distressing, for the patient's chance of recovery would have been fairly good if it had not happened. I record the case because it is necessary to complete the series, and also because it shows how the ordinary anatomical relations may be distorted by pelvic growths.

The last case in this group, No. 13, was a most unpromising one. The patient was 44 years old, and had had her ovaries

removed by the obstetric physician to one of our Metropolitan Schools, in May, 1893, for the purpose of arresting hæmorrhage caused by a uterine tumour. Her periods ceased for six months after the operation and then returned, blood being constantly lost in small quantities, and very copiously for a few days about once a month. On two subsequent occasions the patient had some operation performed through the vagina, an anæsthetic being given. After the first the periods again ceased for six months, and then returned as before. The second of these minor operations was performed in November, 1895, and there was no discharge after it, but the uterine tumour began to grow rapidly and became very painful. The patient stated that on June 30th, 1896, she was transferred from the gynecological to the surgical department of the hospital she was attending, and she then decided to seek advice at the Samaritan Free Hospital, where she was admitted under my care on July 6th.

She had a tumour of the uterus rising out of the pelvis to the level of the navel with an irregular surface and very tender. It expanded the cervix uteri down almost to the external os, but it was fairly movable from side to side at its upper part. Those of my colleagues who saw the case advised that the tumour should be removed, although it was obvious that the patient was very feeble. I agreed that an operation alone could give relief. Nevertheless, I should have hesitated about undertaking such an obviously dangerous course if the patient had not urged me to do so after I had clearly expressed to her my opinion that the result would be very doubtful. Before the day fixed for the operation the patient developed a dry cough with pain at the base of the left lung, where a distinct friction sound was heard accompanying the respiratory movements. In consequence of this the operation was postponed till July 16th, when the chest condition was decidedly better. I then opened the abdomen intending to take out the whole uterus, but on examining the parts from the inside I determined to leave a portion of the cervix and fix it, by the extra peritoneal plan, between the lips of the abdominal incision. When this can be done I believe it gives the patient a far better chance of recovery than any of the methods by which the abdomen is at once closed.

The operation, as I had expected, was a very difficult one, but the patient gave no trouble from a surgical point of view during

convalescence, although she was in a position of extreme danger for weeks on account of her debility and the state of her lungs. The cervix came completely away as a slough during the fourth week of convalescence, and for a time there was a free opening between the vagina and the anterior wound. Convalescence was slow but complete. I saw the patient on October 5th, 1896, when her wound was quite healed, she was free from pain and had put on much flesh. Microscopically the tumour was a round-celled sarcoma. In it there was a cavity containing about half a pint of fluid. Probably the canal of the uterus had closed on account of the application of caustics, and a considerable retention cyst had formed. (In the spring of 1897 this patient was successfully operated on by another surgeon for acute obstruction of the intestine.)

Group III.—In the remaining cases the second operation was performed on account of some complication resulting from the first operation, or arising during convalescence. In this group I did both operations in six cases. In the other seven I did the second operations only. Five of the patients died.

The first three cases in this group indicate three forms of bowel difficulty which may arise after an abdominal section.

Case No. 14.* In this case the patient, when I first saw her, was 46 years of age, and had been under treatment for uterine tumours in America for 11 years. Amongst other methods Apostoli's had been applied twice a week for 12 months, and the patient asserted that this had made her worse rather than better. She had constant and increasing pain, which was more severe at her monthly periods. I was at first inclined to take the view which had probably been taken by others, namely, that an operation for the removal of the growths was unjustifiable when the patient might shortly hope for relief by passing through the change of life. After keeping her under observation for about six months, however, I came to the conclusion that she really did suffer sufficiently to justify immediate surgical interference, and, on opening the abdomen, I found that there was in each iliac region a very hard oval tumour about the size of an orange attached to the top of the uterus by a pedicle about an inch and a half long and as thick as an ordinary cedar pencil. These growths were almost devoid of blood supply, and had undergone

a kind of calcareous degeneration, so that they were practically foreign bodies, and acted as such. They had created much inflammation, and were attached by adhesions to omentum, intestine, and everything they touched. Without doubt these adhesions were a chief cause of pain. In addition to the above there was a large soft fibroid tumour tensely filling Douglas' pouch. I removed all the tumours and also the ovaries and Fallopian tubes, and fixed the stump of the uterus outside the peritoneum in the usual way.

The highest temperature during convalescence was 101·6° F. in the vagina, the highest pulse 96, and the wound steadily healed round the sloughing pedicle; but convalescence was complicated by the fact that every attempt to feed the patient by the mouth gave rise to pain, retention of flatus, and abdominal distension, these unpleasant conditions ceasing when nutriment was administered only by the rectum. This alternation of conditions was repeated over and over again, the pulse and temperature being only very slightly affected. The bowels were moved from time to time by enemata, but the administration of these also gave much pain, and laxatives always caused distension.

Two months after the operation I ordered that feeding by the mouth should be persevered with for a few days. The result was that after four days the pain became very severe and culminated in a kind of fit. Under rectal feeding the patient returned to her usual condition; but after this attack she was able to take food more freely, and laxatives had more effect than before in moving the bowels. I believe that some adhesions gave way at this time. The patient left my immediate charge a fortnight later with instructions to be very careful in keeping the bowels open and to limit the diet if she became distended. I hoped that the partial obstruction which evidently existed would be overcome in time by the gradual stretching of adhesions. The patient continued, however, to be much troubled by pain and distension. She could not take laxative medicine or use an enema without suffering severely, and the bowels would not act spontaneously. After an interval of 22 months I agreed to the patient's urgent request that I should reopen the abdomen and separate the adhesions which I believed to be the cause of her trouble. In consultation at this time it was discovered that the patient's right kidney was movable. It was suggested that this was the sole cause of the

patient's symptoms, and fixation of the kidney was recommended. I adhered to the view that adhesion of the intestine was the chief cause of mischief, and on October 16th, 1895, I opened the abdomen and found that the centre of the transverse colon was fixed to the back of the abdominal incision nearer to the pubes than to the umbilicus, so that this portion of the gut had a V shape, and the acute angle at the middle of the colon was at the time of operation occupied by a scyballous mass of fæces. The omentum was much adherent to the abdominal wall and also to the sigmoid flexure, which was thus fixed to the centre of the transverse colon. This arrangement accounted for the way in which the administration of an enema had always caused a severe dragging pain in the region of the liver. I separated the transverse colon completely from the omentum and put it in its proper place. The right kidney was movable, but the adhesions found seemed to me to account fully for the patient's symptoms, and in any case the operation had been so difficult and prolonged that the addition of further manipulations was not advisable. The patient made a good recovery and her bowel condition was much improved. She still complains, however, of distension and pain in the right side. During the summer she suffered much from headaches, and on one occasion she had an attack which was said to be an epileptic fit. When I have seen her she has always looked very well, and Mr. Thorburn Steer, under whose observation she has been recently, tells me that the attacks of pain are certainly less troublesome as time goes on. The patient was able to go to Scotland and the seaside in the course of the summer, and in September she went to America.

The next case, No. 15, illustrates a remote and rare effect of a pelvic operation. The patient had a double ovariotomy performed in 1882. This was followed by troublesome constipation, which became a serious difficulty 10 years later. She came under my care in May, 1893, when no treatment, either by the rectum or by the mouth, made the slightest impression on the bowels, which were absolutely blocked for a week before I operated. This condition had developed very slowly and was not accompanied by much vomiting. The finger in the rectum could not reach the seat of obstruction, but large masses of fæces were felt both through the rectum and through the vagina, and also by palpation of the abdomen. The patient was very feeble, but improved

somewhat under careful nursing and the administration of food by the rectum. There was no rise of temperature. After consultation, I opened the abdomen on June 2nd, 1893, and found the whole colon enormously distended, but I could not find the cause of obstruction. As there had been no fever, and the patient, although very weak, was not acutely ill, the small gut not being distended, I decided to sew the sigmoid flexure to the wound and to open it later. By 8 p.m. on the day of operation, however, the patient's condition was extremely serious—the pulse being 140 and the temperature 102° F. It was obvious that the bowel must be opened without further delay. This was done and a large quantity of fæces was removed, but death occurred about midnight.

At the autopsy it was found that there had been no escape of fæces into the peritoneal cavity. At the lower end of the sigmoid flexure the canal of the gut was almost completely obstructed by a mass of cicatricial tissue which had ulcerated on the mucous surface. The lumen of the canal was reduced to the size of a cedar pencil and passed obliquely through the diseased tissues. There were some fæces in the rectum after death, so that the obstruction had been to some extent relieved by the diminution of pressure from above. There was still a very large quantity of fæces in the colon. It is impossible to say definitely that the stricture depended on the ovariotomy performed 11 years before; but I think it highly probable that there was some drag on the bowel from that date, which was indirectly the cause of the development of cicatricial tissue.

It is easy to say now that in this case it would have been wiser to open and clear the bowel at the time of operation.

Case No. 16. In the next case the patient had a supravaginal hysterectomy performed in 1893, from which she made a good recovery. She continued well till March 22nd, 1896. On the evening of that day she ate a hearty supper, and on the following morning she was seized with severe pain in the abdomen. I was asked to see her on the 24th, when I found the pulse 72 and the temperature below 100° F. To the left of the middle line I could define a distended coil of intestine, which I thought might be the sigmoid flexure. Further consultation was desired, and as a consequence operation was postponed. In the meantime, opium and belladonna were given, food by the mouth was withheld, and

the patient was nourished by nutrient enemata. During the night a little flatus escaped occasionally when a tube was inserted into the rectum. Next morning the pulse was 108; the temperature had been 103° F., had fallen to 101·8°, and was again 103°, and the abdomen was somewhat distended. I opened the peritoneal cavity, and found a coil of small gut strangulated and sloughing, having been tightly constricted by a band of adhesion, which was very strong, although not thicker than a piece of No. 3 Chinese silk. I brought the parts out, cleaned them as much as possible, washed out the peritoneal cavity, and made an artificial anus; but diffuse septic peritonitis already existed, and the patient died about 10 o'clock in the evening of the day of operation.

Surgical treatment cannot be employed too soon for the condition which existed here, but although, as in the last case, it is easy to say now what should have been done, it is not always easy to decide beforehand when to operate, and it is sometimes still less easy to persuade the patient and the patient's friends of the necessity for immediate interference. Quite recently I was called to a case in which an obstruction was clearly diagnosed, and in which I gave a most unfavourable and only too correct prognosis, mainly on account of the time that had elapsed from the onset of the first symptoms, but also in some measure because the symptoms had been attributed to an indiscretion in diet, and efforts had been made to relieve them by means of purgatives. I thought it right, however, to give the patient the chance afforded by an operation. I found an obstruction due to a complicated twist and adhesions of the bowel, for the release of which considerable manipulation was required. The patient's history seemed to indicate that the adhesions had been caused in the first instance by a pelvic inflammation following the birth of a child. This had been completely recovered from, and no doubt the obstruction was directly induced by the eating of a large quantity of shell fish. The whole of the gut above the obstruction was so intensely congested and so completely paralysed that it remained a large, flaccid, blue-black tube after its contents had been removed. Death followed within 12 hours; but even in this case it might have been thought, from the appearance of the patient between the intervals of sickness, that she had no serious disease—so much so that I remarked on the patient's placid appearance before the administration of the anæsthetic.

Cases of obstruction by band, if promptly treated, should give as good results as the operation for strangulated hernia. Unfortunately, the diagnosis is more difficult, and the initial treatment is too often a purgative.

In the two following cases, Nos. 17* and 18, the second operation was required on account of a hernia in the scar of the first. Case No. 17 is the only one in which I have found this necessary after an operation by myself, although I know that small herniæ which give little trouble have occurred in a few of my cases. In this case the hernia was also small, but it seemed well to cure it, and the patient has now a firm cicatrix. Case No. 18 is somewhat remarkable, in that the first operation was performed in 1881, and the scar gave no trouble for 13 years. Suddenly, after lifting a heavy box, the patient found a hernia, and in 1895 I cured this for her.

In three out of the four operations performed in Cases Nos. 19* and 20,* the peritoneum was not opened, but the histories are related here because the kidney is an abdominal organ. In the first, the fatal issue was rather a failure to cure a dying child than a death from operation. The patient was 11 years old, and extremely anæmic. She had suffered from pain in the right kidney for five years, and when she came under my care the urine contained pus to the extent of from one-third to half of its bulk. The right kidney was very tender, and enlarged to about six times its normal size. The patient was so feeble that in consultation it was decided simply to drain the kidney, in the first instance, unless a stone forced itself on my notice. Accordingly, on July 21st, 1891, I opened the kidney, and the operation gave very great relief to the patient. Her pain ceased, she gained flesh and colour, and all went well for more than three weeks, urine being discharged freely from a tube placed in the wound. In the fourth week the patient developed signs of obstruction in the left ureter. She suffered severe pain, was unable to take food, and rapidly became extremely ill. I then opened the left kidney also, but did not, as I had hoped, find a stone blocking the upper end of the ureter. The drainage of this kidney relieved the patient's pain immediately, but she had little strength left, and she died three days later.

At the autopsy the right kidney was found very much enlarged, completely disorganised, and with a stone the size of a hazel nut

near its centre. There were many minute calculi in the left kidney, which was otherwise healthy. At two points the left ureter was visibly distended, apparently by two stones. But on the slightest pressure the obstructions crumbled away. They were collections of minute calculi which had got jammed in the ureter so as to block its lumen.

Case No. 20.* In this case an unusually adherent dermoid ovarian tumour was removed on June 11th, 1896, and the patient's condition gave absolutely no trouble or anxiety for a fortnight. On the sixteenth day she was allowed to get up and lie on the sofa, and she then complained that her belt hurt her. She continued to complain of pain, and two days later there was a rise of temperature. The patient was confined to bed again, and I discovered a decided tenderness in the left kidney, which was enlarged. I then obtained a history that for 18 months the urine had from time to time been thick when passed. The specimen which I had examined before operation became very slightly hazy on boiling. The urine passed during the first fortnight of convalescence was abundant, acid, and clear, but I did not examine it for albumen. On July 3rd, the twenty-second day after the operation, some urine was passed containing about half its bulk of pus. After this the patient's condition improved somewhat; but the right kidney also was now slightly enlarged and tender. The urine again became clear, and contained only a trace of albumen. There was no trouble from the bowels. The lower abdomen was soft and flaccid, and no hardness or tenderness was detected in the pelvis by bimanual examination. The left kidney remained very tender. On July 6th, the twenty-sixth day after the operation, the patient's condition was again worse, the left kidney was very hard and could not be touched without causing severe pain, the temperature rose to 105°, the pulse, which had kept steady, about 84 to the minute, rose above 100. The patient became drowsy and indifferent, and I expressed the opinion that she would die if an opening were not made into the left kidney. The patient's friends wished Dr. Douglas Powell to see her, and he kindly met me and Dr. Coker, of Uxbridge Road, on July 7th, when it was agreed that the kidney should be opened. This was done immediately. The kidney was very large, not less than 9 inches long, and broad in proportion. On tapping it with a trocar and cannula, I drew off some red fluid, but no pus. I there-

fore made an incision into the pelvis, but still got no pus. On inserting my finger I found that the calices were much enlarged, and I divided several septa, pushing my finger into the kidney in all directions, but gaining no further information as to the cause of mischief. The parts outside the kidney were quite normal. I inserted a drainage tube and closed the wound. The patient was very feeble for a couple of days, and the temperature remained high. After July 9th the course of convalescence was one of steady improvement, with occasional rises of temperature and attacks of pain, the urine being sometimes alkaline and containing albumen, and sometimes acid and free from albumen.

Later on, it was discovered that these attacks yielded promptly to purgation, and Dr. Coker suggested that free purgation might have obviated the necessity for the second operation. This is just possible, although I hardly think it likely. It did not occur to any of us to treat the case in this way at the time of serious danger, and the bowels were then being frequently moved without difficulty.

It should further be considered that although I discovered nothing but a much dilated kidney at my second operation, I must certainly have altered the relations of its calices to each other by my manipulations, and that in this way I may have broken down some obstruction to the exit of urine. I am inclined to think that this patient had suffered from pressure of the tumour on her ureters, especially the left, for many months before operation, that the kidney was distended occasionally, and that when she got up after lying on her back for a fortnight, the left kidney was tilted over, and induced a valvular obstruction which was closed by the pressure of the fluid within the kidney, and could not properly relieve itself till the kidney was opened. At the second operation I probably relieved some valve-like obstruction such as is described by Fanger in the 'Annals of Surgery' for June.*

For the past two months both the wounds have been quite healed; the patient can get about, and has been in very good health, with the exception of one attack of pain, accompanied by a rise of temperature, which continued for about four days, and on one occasion was as high as 104° F. A free purge was

* The operative conservative treatment of sacculated kidney. 'Annals of Surgery,' June, 1896.

administered whenever the temperature rose, and in a week the patient was well again.

(This patient's health is now thoroughly re-established—July, 1897.)

In the following six cases an immediate operation was deemed necessary during convalescence from various surgical procedures.

In Cases Nos. 21* and 22* I did both operations, and the results were fatal. In the last four cases I only did the second operation, and all recovered.

In Case No. 21* the patient was a woman, 35 years old, in whom extreme anæmia had been induced by profuse hæmorrhages, caused by the presence of a fibroid uterine tumour. I removed the growth without much difficulty, and fixed the lower part of the body of the uterus between the lips of the abdominal incision by means of a *serre-nœud* in the usual way. After the operation the patient gave me little or no anxiety, except for the fact that she was extremely feeble. The temperature, taken in the vagina, was never above 102·4° F., and by the ninth day it had come gradually down to 99° in the morning and 100·4° in the evening. The bowels had then acted freely, the sloughing pedicle seemed to be separating nicely, the patient enjoyed her food, and I thought all would be well with her. On this day I made a note that the wound above the pedicle was absolutely free from all signs of irritation, and I removed all the sutures except those next the sloughing pedicle. The following night the patient was restless and uncomfortable, but she felt better after the bowels had been well cleared by an enema in the morning. My attention was chiefly devoted to keeping up the patient's strength. I noticed that the abdomen was somewhat full, and I supported the incision by strapping, but I did not anticipate that the scar would give way. The wound was dressed daily, and on the twelfth day after the operation I found that about an inch of the upper part of the incision had yielded, exposing the omentum. There was no adhesion or other sign of inflammatory reaction. I carefully cleaned and reclosed the opening by three sutures, but the patient gradually sank, and died 36 hours later. At the autopsy there was no evidence of inflammation in the abdomen except some injection of peritoneum behind the seat of rupture of the wound. There was much congestion of the lungs, and all the tissues were very anæmic.

I have seen a considerable number of cases of rupture of the abdominal wound due to a sudden strain, as from retching, or coughing, after the sutures had been removed, but I have never seen any other than this in which there was no attempt at union of the exposed viscera to the edges of the incision, or any in which a fatal issue has resulted from the accident.

In Case No. 22* the patient was 40 years old. She had had one miscarriage soon after marriage, nine years before she came under my care. There had been an uterine discharge for about six years, which constantly increased and had been very offensive for about two years. The uterus had been curetted by one of my colleagues in February, 1896, but a microscopic examination of the scrapings had not indicated that the disease was malignant. After a time, however, a clinical diagnosis of malignancy was made, and I was asked to remove the uterus. When I saw the patient her womb was slightly enlarged, and was discharging great quantities of extremely offensive matter, and as a consequence the patient was extremely anæmic. Removal of the uterus seemed possible, and the patient, although made fully aware of the serious nature of operative treatment, was most anxious to take the risk. My colleagues, with whom I consulted, thought an operation was justified as affording the only chance of relief. I therefore agreed to open the abdomen and to perform hysterectomy if the disease seemed confined to the womb. I found an enlarged uterus, retroflected, but quite free from adhesions, and apparently limiting the disease within its walls. I removed the uterus, but in separating it from the bladder my finger slipped through the tissues of the cervix into the cervical canal, and when I divided the peritoneum behind the cervix, the body of the uterus came away in my hand. Cancer had almost destroyed the whole circumference of the uterine wall at the level of the inner os. I removed the remains of the cervix piecemeal, but, I thought, completely, securing all bleeding points, and cleaning the parts carefully. The patient, at the end of a long operation, was in a very weak state, the temperature being 97·6° and the pulse 136. The pulse soon came down to 96, the temperature gradually rose, and in the evening, although she was very feeble, the patient's condition, both physically and mentally, was satisfactory. Next day she appeared to be doing well in many ways. She had passed 10 ounces of urine in the night without the aid

of a catheter, and had had some quiet sleep. Flatus had escaped when a rectal tube was passed, and there had been no vomiting. The temperature had risen to 102·2° F. in the axilla, but had come down to 99·6° by 10 a.m. The pulse, however, was extremely feeble, had risen to 140, and during the forenoon the heart failed still more. Early in the afternoon the patient suddenly collapsed, the temperature falling to 97°, and the pulse becoming uncountable. When I saw her a little later she was evidently moribund, but still sensible, and the condition seemed to me to simulate the effects of hæmorrhage so closely that after I had ascertained that there was no escape of blood from the vagina, I determined to re-open the abdomen. The patient was so ill that no harm could result if there were no hæmorrhage, and it did not seem right that I should leave the question of the possibility of the existence of hæmorrhage undecided. The second operation was a very trivial one—merely the removal of a few sutures and the insertion of the finger—but it might have been a very important procedure, as in Case No. 24, and it brings the case within the limits of this paper. The patient died an hour later.

At the autopsy some coils of intestine were found adherent in the pelvis, and there was some turbid serum there also, but no blood. A part of the cervix uteri had not been removed. The report says that no definite cause of death was discovered.

I believe that this was one of those cases in which the patient dies of the reaction from the operation—from sheer inability to withstand the effects of the advancing inflammation. Such cases are often ascribed to the effects of shock; but the conditions are as different as possible from those seen when the patient dies from the immediate effects of an injury.

Of course, the question arises whether death was due to a rapid septicæmia, for the patient was certainly septic; but the death was, I consider, primarily from heart failure, and the clear brain, the moderate temperature, and the whole aspect of the patient were altogether unlike what is found in a typical case of rapid septic infection.

It was, perhaps, an error of judgment to yield to this patient's desire to be operated on; but I have always been guided in this question by the view that if there be any doubt as to the course to be adopted, that is, if I think there is any chance at all of benefit being derived from an operation, the patient should be

allowed to decide for or against this course, if he or she has been made clearly to understand the risks involved—always provided, of course, that the patient appears to be capable of making a well-weighed decision. Although I consider that in this case it was a mistake to operate, there are other cases (No. 13 in this list, for instance) in which I dreaded the result of surgical treatment quite as much, and yet the issue has been in every way satisfactory.

In the last four cases in my list I was fortunate in being able to perform successful operations in emergencies occurring in the practices of others.

In Case No. 23, the operations were the same as in Case No. 21, namely, a hysterectomy and a re-sewing of a ruptured incision on the eleventh day. But in this case the patient was a strong woman, her wound gave way suddenly during the night, and when I examined it some hours later, I found the protruding bowel firmly adherent to the divided edges of the incision. I cleaned the parts, returned the viscera, and sewed up the wound, which did not give any further trouble.

In Case No. 24 I was asked to see a patient about two hours after a hysterectomy had been performed. She had suddenly become very pale and faint whilst in the act of retching. When I saw her, she had every appearance of severe hæmorrhage. As the gentleman who had operated was not at hand, I opened the abdomen, found that its cavity was full of blood, and that the right broad ligament had slipped completely from its ligatures. I re-secured the divided broad ligament, and removed large quantities of blood; but I did not wash out the abdominal cavity, because healthy blood clot is not likely to do harm. A glass drainage tube was placed in the pouch of Douglas. It was doubtful for many hours, indeed for days, whether the patient would survive, but she gradually rallied, and made a perfect, though slow, recovery. She was alive and well five years after the operation.

In the second last case the inverted fundus of the uterus simulated a polypus, and had been removed by means of scissors, the nature of the operation being discovered by examination of the specimen. I saw the patient within an hour, and, although her condition did not appear serious, I thought it best to insure against hæmorrhage by opening the abdomen and securing all

bleeding points. The second operation was begun within two hours of the first. Very little bleeding had taken place, but the disturbance of the parts set up free hæmorrhage, and there can be little doubt that the patient would have run a very serious risk when reaction set in if the hæmostatic power of nature had been trusted to. I tied the uterine arteries and broad ligaments, and sewed together the divided uterine surfaces, so as completely to close the opening from the vagina to the peritoneum. The patient made a perfect recovery.

The accident that occurred in Case No. 26, is, I believe, very rare. I have heard of only one other case. In dressing a patient whose pelvis was being drained, I discovered, on the fourth day after operation, that the glass drainage tube was fractured. It had been noted that the discharge from the tube had continued of a bright red colour longer than usual, but there was nothing to indicate when the fracture had occurred. I removed some sutures and fished up the lower half of the tube with a pair of forceps, the blades of which were guarded by rubber tubing. The two pieces of glass accurately completed the tube. Another tube was inserted for 24 hours, but beyond a sharp rise of temperature and pulse, which was recovered from next day, the accident caused no trouble, and it did not delay convalescence.

In shortly reviewing these cases I propose to direct attention only to one or two points which seem to me very important in connection with the fatal cases, and with those in which serious accidents occurred.

The two great dangers which the surgeon must guard against in all cases of abdominal surgery are the introduction of septic mischief during the operation, and the occurrence of obstruction of the bowels or pseudo ileus after the operation.

In the foregoing cases I have succeeded in avoiding a fatal issue from these conditions, although, in all the fatal cases, septic mischief was primarily or secondarily an important cause of death.

By careful treatment the surgeon can prevent the introduction of septic mischief during an operation; but when a case has to be operated on in which the patient's blood is already saturated with the products of some local septic mischief, and especially if, during the necessary operation, the source of septic infection must be interfered with, it may be a very difficult matter to avoid a fatal issue from septicæmia.

For instance, in Case No. 16, when I operated the bowel was gangrenous, and the patient was already thoroughly poisoned. Surgery should not be credited with the fatal issue under such conditions.

Again, in Case No. 22,* the patient was so enfeebled by discharges from the cancerous uterus and by septic absorption that she was unable to withstand a severe operation. In this case also surgery was not at fault, although, as I have indicated, the surgeon would have been wiser if he had not interfered.

In Case No. 11 the patient was so enfeebled by pain and the absorption of septic products that she had little chance of recovery after an operation which was necessarily a very severe one. I was, however, forced to operate, or deliberately to refuse the woman the only chance of a cure, for it was obvious, and the operation proved, that without surgical treatment the patient could only have lived in great pain, and that the condition would sooner or later have exhausted her strength.

The same remarks apply to the case of the child with the large suppurating right kidney and obstruction of the left ureter. Her blood was saturated with septic products, and she had no strength left to withstand the natural effects of the second operation.

I have indicated that, in my opinion, if a patient be very feeble an operation may possibly induce death from inflammatory reaction without the existence of any septic complication, but none of the cases related above illustrate this view well, and in Case No. 15, also, there had been a long-continued absorption of waste products caused by the chronic obstruction of the bowels.

The cases in which it seems to me that death is directly caused by the reactionary fever necessarily following an operation are typically illustrated by such cases as those of railway accidents in which a severe operation, say a double amputation, is performed, and the patient does not die of shock, but recovers consciousness, and dies from 24 to 60 hours after the operation. It is practically impossible to separate the causes of the fatal issue in such cases from those in some of the cases I have related. The feebleness and the septic condition act together to prevent the patient's recovery.

| No. | First Operation. | Date of First Operation. | Interval. | Second Operation. |
|---|---|---|---|---|
| 1 | Ovariotomy * ... ... | 28 July, 1890... | 3¾ years ... | Ovariotomy ... ... ... |
| 2 | Ovariotomy... ... ... | Oct., 1886 ... | 4 years ... | Ovariotomy ... ... ... |
| 3 | Ovariotomy... ... ... | May, 1885 ... | 6 years ... | Ovariotomy ... ... ... |
| 4 | Ovariotomy... ... ... | Jan., 1888 ... | 3½ years ... | Ovariotomy ... ... ... |
| 5 | Double ovariotomy † ... | 1877 ... ... | 6 years .. | Ovariotomy ... ... ... |
| 6 | Double ovariotomy † ... | Nov., 1889 ... | 5 years ... | Ovariotomy ... ... ... |
| 7 | Ovariotomy * ... ... | 6 Jan., 1893 ... | 3 years ... | Fistula formation for obstruction of bowels, due to diffuse cancer of peritoneum. |
| 8 | Incomplete ovariotomy †... | 1885 ... ... | 9 years ... | Complete double ovariotomy... |
| 9 | Left oöphorectomy ... | May, 1890 ... | 10 months... | Rt. oöphorectomy ... ... |
| 10 | Partial removal of uterine appendages. | Jan., 1893 ... | 14 months... | Removal of remains of the appendages. |
| 11 | Partial removal of uterine appendages. | April, 1895 ... | 13 months... | Removal of remains of the appendages. |
| 12 | Two exploratory operations. | 1891 and 1893 | 1 and 3 years | Hysterectomy ... ... ... |
| 13 | Oöphorectomy for tumour of uterus. | May, 1893 ... | 3 years ... | Hysterectomy for malignant tumour. |
| 14 | Hysterectomy * ... ... | 16 Dec., 1893... | 22 months... | For relief of intestinal adhesions |
| 15 | Ovariotomy... ... ... | 1882 ... ... | 11 years .. | For chronic obstruction o bowels. |
| 16 | Hysterectomy ... ... | Feb , 1893 ... | 3 years ... | For acute obstruction of bowels |
| 17 | Removal of pedunculate cystic fibroid tumour of uterus.* | 17 June, 1893 | 9 months ... | For hernia in scar ... ... |
| 18 | Ovariotomy... ... ... | June, 1881 ... | 14 years ... | For hernia in scar ... ... |
| 19 | Rt. nephrotomy *‡ ... | 21 July, 1891... | 4 weeks .. | Left nephrotomy ... ... |
| 20 | Ovariotomy *‡ ... ... | 11 June. 1896 | 26 days ... | Nephrotomy ... ... ... |
| 21 | Hysterectomy * ... ... | 6 Jan., 1891 .. | 11 days ... | For rupture of incision .. ... |
| 22 | Hysterectomy * ... ... | 9 July, 1896 ... | 26 hours ... | For suspected hæmorrhage ... |
| 23 | Hysterectomy ... ... | ... ... | 11 days ... | For rupture of incision... ... |
| 24 | Hysterectomy ... ... | ... ... | 2 hours ... | For slipping of ligature from broad ligament. |
| 25 | Removal of inverted fundus uteri by means of scissors. | ... ... | 2 hours ... | For arrest and prevention of hæmorrhage. |
| 26 | Ovariotomy... ... ... | ... ... | 4 days ... | For rupture of glass drainage tube in abdomen. |

* In cases Nos 1, 7, 14, 17, 19, 20, 21, and 22, the writer performed both operations. In the

† In each of the three cases, Nos. 5, 6, and 8, the writer was informed as to the nature of the some small portion of ovarian or tumour tissue had inadvertently been left behind.

‡ Cases Nos. 19 and 20 are included in the list because the kidney is an abdominal organ.

| Date of Second Operation. | Patient's age at Second Operation. | Result. | Remarks. |
|---|---|---|---|
| 10 May, 1894... | 54 | Recovered ... | Very well July, 1896. The second tumour was attached to the anterior abdominal wall and free from the pelvis. |
| 10 Nov., 1890 | 49 | Recovered .. | Very well September, 1896. Nearly died of obstruction of bowels after operation. |
| 20 May, 1891... | 59 | Recovered ... | Could walk three or four miles without inconvenience, 21 May, 1895. Died of pneumonia, February, 1896. Nearly died of obstruction of bowels after operation. |
| 30 June, 1891 | 38 | Recovered ... | I had some doubts as to whether the disease removed was papillomatous or tubercular. There was much ascitic fluid. Patient fairly well May, 1893. |
| 14 Jan., 1893... | 48 | Recovered ... | Very well September, 1896. Has slight hernia in scar. |
| 28 Jan., 1896... | 52 | Recovered ... | Very well September, 1896. |
| 24 Jan., 1896... | 38 | Relieved ... | Patient much relieved. Died a month later of exhaustion from progress of malignant disease. |
| 5 Oct., 1894 ... | 43 | Recovered ... | Very well October, 1896. |
| 12 Mar., 1891 | 39 | Recovered ... | Patient did not improve for about ten months. Fairly well in 1896. |
| 22 Mar., 1894 | 50 | Recovered ... | Patient was able to work 16 hours a day six months after second operation. |
| 1 June, 1896... | 36 | Died ... ... | Patient was extremely exhausted at date of second operation. She had an abscess in pelvis round ligature applied at first operation. |
| 25 July, 1894... | 47 | Died ... ... | An extremely difficult operation. Four tumours removed. Patient died from an injury to the bladder, which was not detected at the operation. |
| 16 July, 1896... | 48 | Recovered ... | Patient very well in October, 1896. |
| 16 Oct., 1895... | 46 | Recovered ... | Patient able to go to Scotland, the South Coast, and America, in 1896, but the bowel condition is not perfect. |
| 2 June, 1893... | 53 | Died ... ... | Died night of operation. |
| 25 Mar., 1896... | ... | Died ... ... | Bowel gangrenous at date of operation. |
| 31 Mar., 1894 | 41 | Recovered ... | Very well September, 1896. |
| 10 Oct., 1895... | 55 | Recovered ... | Very well September, 1896. Had no hernia for 13 years. It came suddenly from lifting a weight. |
| 18 Aug., 1891 | 11 | Died ... ... | Left ureter became blocked after operation on right kidney. Child extremely feeble from prolonged pyonephrosis. |
| 7 July, 1896 ... | 35 | Recovered ... | Improving September, 1896. |
| 18 Jan., 1891... | 35 | Died ... ... | Patient very anæmic—had little healing power. |
| 13 July, 1896... | 40 | Died ... ... | Patient exhausted by cancerous discharge at date of operation. She was very anxious to be operated on at any risk. |
| ... ... ... | ... | Recovered ... | Patient alive and well recently. |
| ... ... ... | ... | Recovered ... | Patient alive and well recently. |
| ... ... ... | ... | Recovered ... | Patient alive and well recently. |
| ... ... ... | ... | Recovered ... | Patient did well, but not heard of for several years. |

others he only performed the second operation.
first operation by the gentleman who had operated. In cases Nos. 5 and 6 it is probable that

But besides septicæmia and obstruction of the bowels there are many dangers and accidents which may occur to patients in the course of an abdominal section, or after such an operation.

The bowel conditions in Cases Nos. 14,* 15, and 16, illustrate remote dangers. The cancerous recurrence in Case No. 7 illustrates a condition of great importance which should be kept carefully in view in considering a case of ovarian tumour. I believe that such recurrences are much more common than is generally supposed.

The complication is to be avoided by operating as early as possible after an ovarian tumour has been diagnosed, by taking every care to remove it completely, and by not spilling any of its contents over the peritoneum—conditions which it is not always possible to fulfil.

In Cases Nos. 12 and 21,* death was due to accidental causes and other accidents and mistakes are illustrated in the paper.

An injury to the bladder, Case 12; rupture of the wound soon after the sutures have been removed, Cases Nos. 21 and 23; the slipping of the ligatures from blood vessels, Case No. 24; and the mistaking of the fundus of an inverted uterus for a polypus, Case 25, are all accidents that have occurred before, and doubtless will again. They indicate the necessity for the greatest care in every detail of the operation and of the treatment of the patient before and after it.

One of the chief aids to avoiding such complications is the knowledge that they may occur, and this is my chief reason for taking this opportunity of bringing together illustrations of a considerable number of these accidents and of fatal cases by publishing the foregoing group of cases.

*October 26th*, 1896.

## CANCER OF THE TONGUE.

By Charles E. Jennings, M.D., M.S., F.R.C.S.

Having tabulated the notes of 30 cases of patients who attended me some years ago at the Cancer Hospital, all under the belief that they were suffering from cancer, I think interest may be derived from a consideration of these cases, first as a whole and afterwards of some of them in detail. My notes merely show the impressions the cases conveyed to me at the time of observation. In some instances a diagnosis was recorded; in others a brief physical description. I think, however, it will appear that my observations were correct so far as they went.

These cases may be divided into primary groups as follows:—

Group 1.—

In Case 33 the patient was a male, aged 59, who complained of pain in the tongue. But there were no physical signs of any disease of the tongue or adjacent tissues. The patient yielded a history of syphilis in bygone years, and presented symptoms which led me to believe that he was suffering from incipient locomotor ataxy.

Group 2.—There were seven cases regarded as benign:—

Case 4 was that of a married woman, aged 30, who said she was sure she was suffering from cancer of the tongue, because she had such pain in it and spots on it, lumps about the jaws, and an uncle had died of cancer of the lip. I observed perhaps four or five small patches (leucoplakia) of one year's duration, scattered over the dorsum of the tongue, but no other physical signs of any disease. The history of heredity, so-called, I entirely dismissed as having any bearing upon the diagnosis, though as the result of questioning I think the patient was correct as to her statement that an uncle had died of cancer. I think it very likely, if any person develops a few spots of leucoplakia, that such spots may assume epitheliomatous characters in after years, but I did not tell the patient so. There were only a few spots, and leucoplakia sometimes yields to treatment.

Case 8 was that of a woman, aged 44, suffering from a simple papilloma of three years' growth. No relations affected with cancer.

Case 11 is recorded as that of a woman, aged 55, who had suffered from glossitis of a year's duration. No relations affected.

Case 16 is noted as that of a male, aged 34, who had suffered for "years" from ichthyosis. He had also suffered from syphilis. No relations affected.

Case 18 was one of simple papilloma of three months' growth in a woman, aged 60. No relations affected.

Case 26 was one of leucoplakia in a woman, aged 30.

Case 29 was one of a male, aged 60, suffering from simple ulceration of the under surface of the tongue, caused by accumulation of tartar, and this patient was referred to the Dental Hospital. No relations affected.

GROUP 3.—Cases probably epitheliomatous :—

Case 13. A male, aged 64. Tumour of tongue: ulcerated and indurated. No relations affected.

Case 19. A male, aged 53. Ulcerated growth of six months' duration, caused by decayed teeth. Glands enlarged. No relations affected.

Case 24. A female, aged 62. Ulcer, with indurated base. Sharp teeth. No relations affected.

GROUP 4.—There now remain 19 cases, all undoubtedly malignant, and in each the variety was probably purely epithelioma. In this group only one case (No. 21) yielded any history of cancer in the family :—

Case 1. A male, aged 42. He smoked slightly. Secondary neoplasm beneath right side of lower jaw. There is a swelling about the size of a small orange, which is extremely hard and is firmly fixed to deeper structures, probably bone. Also an enlarged gland on the opposite side. Duration, seven weeks. Was operated upon five months previously at another hospital, where, according to the patient, a small ulcer on the tongue had been removed by galvanic cautery.

Case 2. A male, aged 54. Has been a smoker. Recurrent glands in neck on left side. Had an ulcer of the tongue commenced three months previously. Ichthyotic condition of tongue for years. Left half of tongue had been removed with scissors, and the edges brought together by silk sutures, the lingual artery having been previously ligatured. This operation had been performed probably within six weeks of the first appearance of the ulcer.

Case 3. A male, aged 51. Epithelioma of right side of tongue and lymphatic glands. Duration, four months. Supposed cause—decayed teeth. The patient states that three years previously he had a little blister on the tongue.

Case 5. A male, aged 57. Cancerous ulcer in the floor of the mouth on right side. Duration, about one year.

Case 6. A male, aged 52. Cancerous infiltration of tongue. Duration, six months. History of venereal ulcers (syphilitic) on penis 30 years previously.

Case 7. A male, aged 54. Epithelioma of left side of tongue. Duration, 12 months.

Case 9. A male, aged 41. Has been a great smoker and used a clay pipe. Suffered from syphilis 14 years previously. Had an ulcer six years ago on the tongue. Epithelioma of floor of mouth and tongue. At posterior right half of tongue there is an ulcer about the size of a sixpence, and beneath the tongue on the same side there is a rather hard and fixed neoplasm implicating the floor of the mouth. Submaxillary glands slightly enlarged.

Case 10. A female, aged 50. Recurrent epithelioma in left side of tongue. Disease commenced two years previously, and was operated upon 12 months later.

Case 12. A male, aged 57. Cancer of tongue. The dorsum of the tongue and submaxillary glands affected. Duration, six months.

Case 14. A male, aged 49. Cancer of tongue and right side of cheek. Glands affected.

Case 15. A male, aged 54. Epithelioma of tongue. Syphilitic psoriasis.

Case 17. A female, aged 35. Epithelioma of tongue. Has attended another hospital for six months. Since wearing false teeth, 13 months previously, has noticed ulceration of right side of tongue. Use of the false teeth discontinued for four months. Superficial ulceration and nodulation of right side of tongue, extending from tip to nearly back. Deep ulceration middle of the same side. Right half the tongue indurated. Enlargement of glands at angle of jaw. Sternomastoideus incorporated with the glands. The swelling of the glands is of one month's duration.

Case 20. A female, aged 57. History of syphilis doubtful. Syphiloma or cancer of left side of tongue.

Case 21. A male, aged 48. Cousin and sister affected with cancer. Cancer of tongue and submaxillary glands.

Case 22. A male, aged 44. Cancer of tongue (recurrent). Too far advanced for another operation. Previous operation performed 11 months ago at another hospital.

Case 25. A male, aged 61. Cancer of tongue commencing near tip (left side). Caused by sharp stump in upper jaw. Submaxillary glands affected.

Case 27. A male, aged 39. History of syphilis doubtful. Ulceration of right side of tongue of 12 months' duration. Swelling and hardness in submaxillary region.

Case 28. A male, aged 57. History of syphilis. Cancer of tongue of two years' duration. Decayed teeth. A smoker.

Case 30. A male, aged 62. Secondary growth in glands of neck, invading sternomastoideus, resulting from cancer of the left side of the tongue. Operated upon at another hospital four months previously.

The short series of only 30 cases now presented is nevertheless quite sufficient to support certain general conclusions, which I think will be found in accord with several recognised creeds. I do not think any of my conclusions will be found novel, though of sufficient importance to render them worthy of renewed attention, as being the result of fresh clinical experience. Of the 30 patients (of whom 19 at least were undoubtedly affected with cancer) nine were females.

Of these nine cases of disease occurring in women, it was in one case (No. 24) doubtful whether the ulcer was simply caused by sharp teeth and would disappear with the extraction of the teeth —as in some cases often happens—or whether the disease was already malignant. The patient was aged 62, and the base of the ulcer was indurated. That is all the information I can give about this patient, and is quite as much as can be gathered in

practice from each of a group of patients who are every day asking the practitioner whether they are suffering from cancer or no.

Supposing the sore to be of the size of a sixpence and of about six months' duration, its features not typically of such characters as described peculiar to epithelioma; supposing also the microscope should yield a negative result, yet who can say that the disease may, notwithstanding these circumstances, be of a malignant nature?

If the offending teeth or jagged stump should be extracted immediately time will prove whether the case be one of cancer or not.

But then my cases also show—and this feature will, I am sure, be readily accepted by every surgeon, that given a malignant ulcer on the tongue—only the size of a sixpence—within a very short period the disease, if not thoroughly eradicated, may implicate and infect the glandular tissues too seriously to render a curative operation admissible, by reason of the anatomical relationship which the infected will have acquired to the healthy tissues. Such a case must not be treated by simply removing or destroying the suspicious ulcer and permitting the patient to pass out of observation! That is what was done in Case 1 at one hospital, and the patient applied three months later at another hospital with a secondary neoplasm, the size of a small orange, in the submaxillary region.

That it may not be thought I desire to appear better than my neighbours, it is a melancholy duty on my part to narrate the first case, in which I removed a portion of the left side of the tongue on account of the presence of an epitheliomatous growth the size of a nut. I first ligatured the left lingual artery beneath the hyo-glossus muscle (the integumentary incision not exceeding an inch in length), and then excised the growth with, as I thought, a liberal amount of circumjacent tissue, and closed the wound with sutures. The wound healed by first intention. The patient quitted the hospital, but returned within a few weeks with recurrence in the floor of the mouth.

Believing fully that epithelioma of the tongue is sometimes caused solely by the irritation of jagged stumps or teeth, and that the ulceration is first of a benign character, I would, in a suspicious case, recommend that the offending teeth should be extracted, and

the patient not examined for a week—generally a long-enough period for marked improvement to have obtained if the case be not already of a malignant nature. If there be any evidence of antecedent syphilis, full doses of iodide of potassium, with a little bichloride of mercury, should be exhibited. Mr. Hutchinson's views, as to the importance of applying for a short period the test of anti-syphilitic remedies, are well known. But after the lapse of a week, or at most a fortnight, from first seeing the patient, the surgeon should decide whether or no an operation in the case is advisable; and, if undertaken, the operation should be of most ample character. Five of the nine cases in females were benign. These five cases include two cases of simple papilloma, one case of glossitis, and two cases of leucoplakia. Of the three remaining cases in this group, in one it was probable, though not absolutely certain, that the disease was epithelioma. Possibly it was syphiloma, or epithelioma arising out of syphiloma. The history as to syphilis was doubtful, yet, in the absence of a history elicited from a patient, a syphiloma may exist.

The remaining two cases in this group were both of recurrent epithelioma.

It may now be noted that in all save one of nine female patients the existence of syphilis was excluded. Of the 21 male cases in seven there were either probable or certain proofs of antecedent syphilis—but one of these patients was not suffering from any disease of the tongue. One of the patients suffering from recurrent cancer described himself as a slight smoker, and two others smoked moderately or heavily: one of these smokers was also a syphilitic subject.

I think we may exclude slight smoking as a cause of cancer, but even slight smoking may tend to increase the rapidity of the growth of cancer of the tongue already established.

I do not know whether statistics of reliability exist showing the relative frequency of syphilis in the two sexes, though I think it would probably be found much more common in the male. Of the influence of syphilis either as a strong predisposing or as an exciting cause of cancer of the tongue there seems little doubt; nor is there any doubt that cancer of the tongue is sometimes caused by smoking. It is, therefore, susceptible of explanation why cancer of the tongue is more commonly met with in males than in females, though the *far greater* relative frequency

of epithelioma of the tongue in the male is only partly explained upon these grounds. I am not aware that the far greater frequency of cancer of the tongue in the male sex can be entirely explained.

It is so rarely that the tongue is attacked by cancer in other than the epitheliomatous variety that, in endeavouring to formulate rules for working by, epithelioma need only be considered.

The great rarity of the appearance of epithelioma of the tongue in any subject under the age of 30, and the infrequency of its appearance under the age of 40, are features to be noted, as these circumstances show that the tongue, delicate organ though it be, will for half a lifetime resist vulnerability before surrendering to malignant action. That chronic irritation, though from various causes arising, is almost invariably responsible for the causation of epithelioma of the tongue is the view which should be held alike as to the diagnosis, prophylaxis, and possible cure of the disease under consideration.

Years ago Schuchardt traced the steps between buccal and lingual psoriasis and cancer of the cheek and tongue. A case fell under his observation where psoriasis of the tongue had existed for many years in a dormant condition but ultimately assumed the character of epithelioma. The tongue having been removed, the transition from the psoriasis to the epithelioma was demonstrated microscopically. The possibility of any small benign neoplasm becoming malignant must also be remembered. To frighten a patient suffering from some trivial lesion of the tongue is one thing, but to allow such a patient to pass out of observation as insufficiently diseased to demand attention is different. Each case must be treated on its own merits, nor can it be expected that there should be general professional agreement upon the varied treatment applicable to minor lingual lesions.

As to the operative treatment of epithelioma of the tongue two questions at once occur—always difficult in practice to answer:—First, in a case of early epithelioma, what is the smallest portion of the tissues which can be removed and yet the operation afford a prospect of immunity from recurrence? I can only say that I believe the necessary magnitude of the operation is usually underestimated.

Secondly, what case is too far advanced to render an operation inexpedient either as offering no chance of immunity from recur-

rence or of prolonging life, impeding the growth of the disease, ameliorating the condition, or promoting euthanasia? A further difficulty in regard to this question arises because no surgeon can ascertain till the operation is partly performed the precise extent to which the tissues surrounding the neoplasm and its offshoots are affected.

In conclusion I would describe an advanced case in which an operation may be considered advisable and prudent. The major portion of the tongue and floor of the mouth may be affected, and the glands in the anterior triangles of the neck may be extensively implicated—probably to a greater extent on one side than on the other. I would suggest the removal of the glands before removing the tongue, but ligature of the common carotid artery on the side where the disease is the more extensive may be an advantageous preliminary measure. It renders the subsequent dissection on the same side nearly bloodless, affording the surgeon a surer means of eradicating all infected structures, if possible. Then the glands on the opposite side may be removed, a proceeding usually to be accompanied by ligature of the lingual and other arteries of magnitude. Even if the common carotid artery on one side and the lingual artery on the other side have been ligatured it is still not a bad plan to effect the completion of the operation by removing the tongue nearly as far back as the epiglottis with the major portion of the tissues comprising the floor of the mouth by means of a galvanic wire cautery. Free drainage can be salutarily maintained through the incisions by which the submaxillary spaces have been cleared.

To recommend such an operation as this, in a suitable case, does not exceed the limits of prudence, and the advisability of it, I think, may now be considered as having been established by surgical practice.

# THE BEST METHODS OF REMOVING LARGE CALCULI FROM THE BLADDER.

By P. J. Freyer, M.A., M.D., M.Ch.

I do not think that I shall be held guilty of any very great exaggeration when I state that in the whole range of surgery there is, perhaps, no subject which from time immemorial has appealed with greater force to the imagination of the surgeon or stirred more deeply his enthusiasm than the operation for the removal of a stone from the bladder. When, therefore, you, Sir, were good enough to do me the honour of asking me to contribute a paper towards the proceedings of this Society, I had no hesitation, I may say, in responding to your invitation, believing that the subject to which I propose directing your attention this evening—namely, on the best methods of removing large vesical calculi—was one which would interest the Fellows, and at the same time open up an excellent field for after-discussion and interchange of views.

Now, Sir, I shall assume that it has been absolutely proved beyond the shadow of a doubt, from the statistics and literature that have been published on this subject in recent years, that when we have to deal with a small or moderate-sized stone, or, indeed, with one of very considerable dimensions, whether occurring in the male or in the female, in the adult or the child, there is nowadays, in the vast majority of instances, only one operation either admissible or justifiable—namely, that introduced by the late Professor Bigelow, of the United States, and named by him "litholapaxy." That operation consists, as you are all aware, in the rapid crushing of the stone and the complete removal of its fragments at one sitting by means of the aspirator and cannula. So much have I myself been impressed by the principles enunciated by that great surgeon and by the practice inculcated by him that I have now almost completely abandoned every other method of treatment of stone in the bladder in favour of his. The force of this statement will be brought home to you when I tell you that amongst my last 300 cases of stone in the bladder in patients of all ages, from 2 to 90 years, the calculi varying from a few grains in weight up to $6\frac{1}{8}$ ounces, there were only seven cutting

operations,—namely, two suprapubic, four perineal, and one vaginal lithotomies,—the remaining 293 cases having been found amenable to treatment by Bigelow's method. And, in order to emphasise still further the almost complete universality with which Bigelow's operation can nowadays be applied, I will mention that in the year 1890 I had 106 cases of stone under my care, one and all of which were treated by this method, with one death. The fact is, the practised litholapaxist will nowadays approach a stone of the moderate dimensions I have indicated with a confidence and a certainty of success unequalled, I venture to say, in any other great operation in the whole range of modern surgery.

When, however, the stone passes a certain size and weight—when, in short, it becomes a large stone—the conditions are entirely changed; changed not so much from the difficulty of dealing with the stone itself, as from the fact that the patient, from years of pain and suffering, has his constitution worn out, and his vital organs, and particularly his kidneys, more or less affected. And I venture to say that there is no surgeon, no matter how eminent he may be, who has to deal with a stone of the size or weight of any of those placed on the trays before me this evening, who will not feel that he has a grave responsibility thrust upon him, no matter by what method he may determine on removing that stone from the bladder. The object of my remarks this evening is to endeavour to assist you in arriving at a conclusion as to the best method or methods of removing such calculi.

The question now arises: What are we to regard as a large stone? What is the size or weight below which a concretion is not to be permitted to enter into this category? I need scarcely tell you that it is impossible to draw a hard-and-fast line which will be applicable under all circumstances. But there are two considerations that will assist us in arriving at a solution of this question: (1) The age of the patient, and (2) the experience of the operator. A stone of, say, $\frac{1}{2}$ ounce, which in an adult would be regarded as one of very moderate dimensions indeed, would in a child of 3 or 4 years be regarded as a large one—as large, I should say, comparatively speaking, as one of 3 ounces in an adult. Then, again, the novice at the modern operation—and, in the natural order of things, I suppose we must all be novices at one or

other period of our lives, not even excluding those of us who start life as specialists in this particular branch of surgery—a novice would, I say, regard a stone of ½ ounce as a large one, and rightly and justly so consider it, whereas a practised hand like that of our President, for instance, or of some of those gentlemen whose familiar faces I see before me this evening, would regard dealing with a stone of that size by the modern operation nowadays as simply child's play.

Time will not permit of my entering this evening on that extremely fascinating subject, stone in children—not even though we have the pleasure of numbering amongst our Fellows this evening the distinguished surgeon who was the first to extend Bigelow's operation to the case of male children. I must, therefore, ask that the remarks I have to make to-night shall be regarded as applying mainly to the adult. And, passing over the period of our novitiate, I must ask you to draw slightly on your imaginations, and by a kind of poetical licence consider that we are all here this evening practised and accomplished litholapaxists. Under these circumstances, and for the purposes of the evening only, I will define a "large stone" as one weighing 2 ounces and upwards, of which there are on this table before me 49 examples drawn from my own practice, now extending to nearly 900 operations for stone by all methods.

I have drawn up this tabular statement (*see* pages 47 and 48) giving at a glance some of the important features of each of these 49 cases, namely, the date of operation, the variety of operation, the age of the patient, the weight of stone removed, the variety of calculus, the time spent in hospital after the operation, the time spent over each litholapaxy operation, and the result. The patients were all males except one; they were all adults except two—boys aged respectively 14 and 15 years; and they all occurred in my practice in India—in my state of previous existence, if I may say so—before I was permitted to have the honour of migrating into the Elysian fields in the vicinity of Cavendish Square, where stones are not supposed to be permitted to grow into large ones!

*Table giving Particulars of Forty-Nine Calculi weighing Two Ounces and Upwards Operated on.*

| Serial No. | Date of Operation. | Nature of Operation. | Age. | Weight of Stone. | | | Variety of Stone. | Days in Hospital. | Time Occupied by Operation. | Result. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ozs. | drs. | grs. | | | Minutes. | |
| 17 | May 19, 1878 .. | Lateral lithotomy .. | 65 | 2 | 0 | 0 | Urates, phosphates .. | 40 | — | Successful. |
| 66 | Oct. 14, 1881 .. | ,, .. | 35 | 2 | 0 | 0 | Urates .. .. | — | — | Died. |
| 72 | April 4, 1882 .. | ,, .. | 25 | 2 | 3 | 0 | ,, .. .. | 24 | — | Successful. |
| 82 | April 19, 1882 .. | ,, .. | 60 | 2 | 1 | 0 | ,, .. .. | 41 | — | ,, |
| 83 | April 19, 1882 .. | ,, .. | 40 | 3 | 4 | 0 | ,, .. .. | — | — | Died. |
| 90 | June 2, 1882 .. | ,, .. | 22 | 2 | 0 | 0 | Oxalates .. .. | 19 | — | Successful. |
| 99 | Aug. 5, 1882 .. | ,, .. | 29 | 3 | 0 | 0 | Urates .. .. | 36 | — | ,, |
| 126 | Dec. 6, 1882 .. | Litholapaxy .. .. | 60 | 3 | 2 | 0 | ,, .. .. | 11 | 66 | ,, |
| 136 | Jan. 11, 1883 .. | Suprapubic lithotomy.. | 17 | 3 | 1 | 0 | Uric .. .. .. | 32 | — | ,, |
| 142 | Feb. 20, 1883 .. | Lateral lithotomy .. | 20 | 2 | 0 | 30 | Urates, phosphates .. | 48 | — | ,, |
| 146 | Mar. 17, 1883 .. | ,, .. | 60 | 4 | 0 | 30 | Uric .. .. .. | — | — | Died. |
| 164 | May 15, 1883 .. | Litholapaxy .. .. | 45 | 2 | 4 | 0 | ,, .. .. .. | 11 | 70 | Successful. |
| 168 | May 25, 1883 .. | ,, .. .. | 45 | 2 | 6 | 0 | ,, .. .. .. | — | 75 | Died. |
| 180 | July 3, 1883 .. | Suprapubic lithotomy.. | 27 | 12 | 4 | 0 | Urates .. .. | — | — | ,, |
| 209 | Nov. 15, 1883 .. | Lateral lithotomy .. | 40 | 2 | 6 | 0 | ,, .. .. | 33 | — | Successful. |
| 211 | Nov. 21, 1883 .. | Litholapaxy .. .. | 80 | 2 | 0 | 55 | ,, .. .. | 17 | 90 | ,, |
| 231 | Mar. 7, 1884 .. | Lateral lithotomy .. | 75 | 4 | 3 | 0 | Uric .. .. .. | — | — | Died. |
| 237 | Mar. 17, 1884 .. | ,, .. | 36 | 2 | 7 | 0 | ,, .. .. .. | 24 | — | Successful. |
| 264 | June 21, 1884 .. | Litholapaxy .. .. | 35 | 2 | 0 | 0 | Phosphates .. .. | 9 | 17 | ,, |
| 276 | Aug. 12, 1884 .. | Lateral lithotomy .. | 14 | 2 | 2 | 30 | Oxalates .. .. | 22 | — | ,, |
| 277 | Aug. 13, 1884 .. | Litholapaxy .. .. | 26 | 3 | 1 | 30 | ,, .. .. | — | 52 | Died. |
| 297 | Oct. 26, 1884 .. | ,, .. .. | 55 | 2 | 0 | 45 | Urates, oxalates .. | 7 | 26 | Successful. |
| 316 | Aug. 30, 1885 .. | ,, .. .. | 60 | 3 | 2 | 30 | Uric .. .. .. | 24 | 65 | ,, |
| 322 | Sept. 9, 1885 .. | ,, .. .. | 55 | 2 | 2 | 0 | ,, .. .. .. | 8 | 47 | ,, |
| 333 | Aug. 23, 1886 .. | ,, .. .. | 50 | 2 | 0 | 0 | Phosphates .. .. | 10 | 30 | ,, |

*Table giving Particulars of Forty-Nine Calculi weighing Two Ounces and Upwards Operated on*—(contd.).

| Serial No. | Date of Operation. | Nature of Operation. | Age. | Weight of Stone. | Variety of Stone. | Days in Hospital. | Time Occupied by Operation. | Result. |
|---|---|---|---|---|---|---|---|---|
| | | | | ozs. drs. grs. | | | Minutes. | |
| 403 | May 27, 1887 .. | Litholapaxy .. .. | 24 | 2 1 0 | Urates .. .. | 4 | 35 | Successful. |
| 419 | July 6, 1887 .. | ,, .. .. | 30 | 2 4 0 | ,, .. .. | 10 | 45 | ,, |
| 494 | May 24, 1888 .. | ,, .. .. | 44 | 2 1 50 | ,, .. .. | 5 | 17 | ,, |
| 499 | May 27, 1888 .. | Suprapubic lithotomy.. | 35 | 3 2 0 | Oxalates .. .. | 36 | — | ,, |
| 553 | Mar. 25, 1889 .. | Litholapaxy .. .. | 55 | 2 6 0 | Uric .. .. .. | 5 | 35 | ,, |
| 554 | Mar. 29, 1889 .. | Suprapubic lithotomy.. | 30 | 3 4 0 | Oxalates .. .. | — | — | Died. |
| 570 | June 3, 1889 .. | Litholapaxy .. .. | 90 | 2 0 39 | Uric .. .. .. | — | 45 | ,, |
| 604 | Dec. 26, 1889 .. | ,, .. .. | 15 | 3 2 17 | Urates, phosphates . | 31 | 60, 90 | Successful. |
| 625 | Mar. 4, 1890 .. | ,, .. .. | 55 | 2 6 10 | Uric .. .. .. | 16 | 45 | ,, |
| 628 | Mar. 21, 1890 .. | ,, .. .. | 80 | 2 4 37 | Urates .. .. | 9 | 55 | ,, |
| 633 | April 15, 1890.. | ,, .. .. | 75 | 3 1 0 | Oxalates .. .. | 9 | 75 | ,, |
| 668 | July 30, 1890 .. | ,, .. .. | 35 | 2 4 19 | Uric .. .. .. | 7 | 36 | ,, |
| 675 | Sept. 6, 1890 .. | ,, .. .. | 80 | 2 4 18 | ,, .. .. .. | 9 | 35 | ,, |
| 687 | Oct. 20, 1890 .. | ,, .. .. | 70 | 2 0 39 | ,, .. .. .. | 7 | 35 | ,, |
| 712 | Jan. 2, 1891 .. | ,, .. .. | 20 | 3 0 0 | Urates .. .. | 4 | 35 | ,, |
| 732 | Mar. 19, 1891 .. | ,, .. .. | 20 | 2 0 4 | ,, .. .. | 9 | 40 | ,, |
| 763 | Jan. 7, 1892 .. | ,, .. .. | 75 | 2 0 1 | ,, .. .. | 11 | 35 | ,, |
| 773 | Feb. 20, 1892 .. | ,, .. .. | 45 | 6 1 0 | ,, .. .. | 21 | 120 | ,, |
| 779 | Mar. 19, 1892 .. | ,, .. .. | 50 | 2 0 2 | ,, .. .. | 7 | 20 | ,, |
| 790 | May 2, 1892 .. | Vaginal lithotomy .. | 70 | 2 0 0 | Uric .. .. .. | 11 | — | ,, |
| 810 | Sept. 24, 1892 .. | Litholapaxy .. .. | 58 | 3 0 10 | ,, .. .. .. | 6 | 40 | ,, |
| 838 | Feb. 13, 1893 .. | ,, .. .. | 65 | 2 0 50 | ,, .. .. .. | 6 | 22 | ,, |
| 845 | Feb. 28, 1893 .. | ,, .. .. | 60 | 2 2 40 | Oxalates .. .. | 12 | 22 | ,, |
| 865 | Mar. 3, 1895 .. | ,, .. .. | 57 | 2 0 53 | Urates .. .. | 7 | 20 | ,, |

Now, it is scarcely necessary for me to tell you, considering the lengthened period of years over which the calculous disorder must have existed in each instance to produce stones of these sizes, that the patients were, almost one and all, in bad health, and some of them in extremely bad health. Cystitis, with thickened, rigid, contracted, and ulcerated bladder, was present in the vast majority of the cases; hypertrophy of the prostate co-existed in several and stricture of the urethra in a few; the kidneys were more or less affected in most of the cases and gravely affected in many; and, owing to the irritation of neighbouring organs and the constant straining to pass water, diarrhœa, dysentery, prolapse of the bowel and hæmorrhoids are constant concomitants of these large calculi.

The operations undertaken by me were:—

| | |
|---|---|
| Suprapubic lithotomy .. .. .. | 4 |
| Lateral lithotomy .. .. .. | 13 |
| Vaginal lithotomy .. .. .. | 1 |
| Litholapaxy .. .. .. .. | 31 |
| Total .. .. .. .. | 49 |

[Some important features in individual lithotomy cases were then referred to.]

Passing on now to the litholapaxy cases, this tray before me contains 31 calculi, or rather the *débris* of these calculi, removed by Bigelow's method, weighing 2 ounces and upwards—this stone which I show you, which is composed of white urates and weighs $6\frac{1}{8}$ ounces, being the largest that I have removed by this method. A regrettable feature of the modern operation is that in the removal of the stone it has to be disintegrated into fine *débris*, thus destroying its physical characteristics, and we are thus deprived of many interesting and instructive lessons derived from a contemplation of the physical aspects of the stone as removed entire by lithotomy.

A notable feature of these 31 calculi—as, indeed, of the whole collection before me—is their almost universal hardness, there being only two instances of soft phosphatic stones amongst them, the remaining 29 being composed of urates and oxalates, with a little phosphates thrown in in some cases.

[The instruments required for litholapaxy in case of large stone were then exhibited and described.]

A normally capacious urethra is, of course, necessary to enable us to pass these large instruments. When the stone is small, or moderate in size, stricture of the urethra is no bar to the performance of litholapaxy, the stricture being cut internally, or rapidly dilated, immediately before proceeding with the main operation. But when the stone is large the repeated introduction of the instruments is necessary, and I do not think that the repeated passing of these instruments over a recently-dilated or divided stricture is calculated to improve its condition. When, therefore, stricture coexists with large stone, lithotomy should be performed.

Enlargement of the prostate is no bar to the performance of litholapaxy for large stone, unless the hypertrophy be pronounced. Indeed, several of these calculi were removed from patients with enlarged prostate. When, however, the prostate is much enlarged, and the urethra tortuous, lithotomy, either suprapubic or perineal, according to the circumstances of the case, should be had recourse to.

In crushing large calculi there are several special points to be attended to, to which I will now direct your attention.

It will sometimes be found that when a large and hard stone is grasped by the lithotrite, and the instrument screwed home with all one's might, the stone will not at first yield. If we wait a few seconds it is not unlikely that it will do so, and with a loud report. If not, unscrew the lithotrite and catch the stone by another axis, and screw home again. By repeating this process over and over again the stone will, as a rule, yield in the end. Whether the repeated compression of the stone in various directions has the effect of undermining its constitution—if I may say so—or whether a stone has less powers of resistance in one direction than in others, I am not prepared to say. All I can vouch for is the success of the manœuvre indicated.

But there is a limit to the strength of the largest lithotrite that can be introduced through the urethra, and a prudent and careful surgical instrument maker will limit the screw-opening of the instrument accordingly. So we may find that our largest lithotrite will not lock on the stone in the first instance, as occurred in many of these cases. Now, a glance at this tray of calculi removed entire by lithotomy will show that, as a rule, calculi are irregular in shape; so that, though the lithotrite may not lock on the stone

when grasped by the long axis, it may do so when the stone is grasped by a shorter axis or by one end. In this way a portion of the stone is broken off, and reduced to fine *débris;* the main body of the stone is attacked again and another portion broken off, and so on till the whole of the stone is demolished.

In reading over the notes of these 31 cases, preparatory to my remarks this evening, I have been much struck by the fact that in the majority of them the stone was caught in the first instance by the long axis, which had to be changed for a shorter axis before the lithotrite would lock. This is due to the fact which I brought to your notice, Sir, some years ago, and which you were good enough to acknowledge in the last edition of your work on 'Diseases of the Urinary Organs'—namely, that, as a rule, a stone lies in the bladder with its long axis in the antero-posterior direction.

If, however, the stone be more or less round, and so large that the lithotrite fails to lock on it in any direction, what are we to do then? We dig the jaws of the lithotrite into one side of the stone, and, holding them in position, screw home the instrument, thus scraping off a portion of the crust. This process is repeated again and again: and, unless the stone be extremely hard, it is wonderful the rapidity with which it will be reduced to such a size as to permit of the lithotrite locking on it.

One of the most difficult complications we meet with in dealing with large calculi is when the bladder is thickened and contracted —hugging the stone, if I may say so—thus preventing the free movements of the lithotrite in the bladder, so that the jaws of the instrument are with difficulty got on to the stone. This difficulty will, as a rule, be obviated by injecting water into the bladder, thus separating the mucous membrane from the stone. But occasionally it will be found that, even under the most profound anæsthesia, the bladder resents the presence of the smallest quantity of water. In such cases it will be necessary to have recourse to lithotomy.

Passing on now from these general remarks, applicable to most cases of large stone, I will deal briefly with some features of interest in a few individual cases.

And let me first call your attention to the three cases of death that occurred amongst the 31 litholapaxy operations. Time will not permit of my reading you out the notes of these cases in detail.

I must, therefore, confine myself to telling you that the patients were aged respectively 45, 26, and 90 years; that all three were in extremely bad health, with their kidneys extensively diseased; and that the causes of death were, respectively, pyæmia, suppression of urine, exhaustion and shock.

The details of the largest stone ($6\frac{1}{8}$ ounces) that I have removed by Bigelow's method are interesting, and have already been published.*

From the tabular statement it will be seen that, broadly speaking, in proportion as my experience of litholapaxy increased, the time spent over the operation diminished. There were six calculi of from 2 to $2\frac{1}{3}$ ounces in weight removed in periods varying from 17 to 22 minutes; and in Case 712 I removed a urate stone weighing 3 ounces in 35 minutes. These seven operations were all successful. I attribute the utmost importance to the rapidity with which a large calculus is removed by litholapaxy; and venture to say that, other things being equal, our success will vary in such cases in inverse proportion with the length of time spent over the operation. When the stone is moderate in size there is no urgency about completing the operation, because the patient's health has not, as a rule, completely broken down; but in cases of large calculi of these sizes the constitution is, as a rule, worn out, and the kidneys are affected. Under such circumstances prolonged narcosis leads to congestion of the kidneys, exhaustion of the vital powers, and shock.

Not less interesting than the rapidity with which a large stone can be removed by Bigelow's operation is the rapid cure that sometimes ensues. Case 712, already alluded to, was the most remarkable instance of rapid cure in my practice. The patient alleged that the symptoms of stone had existed only six months. Still I removed this urate stone, weighing 3 ounces, in 35 minutes, with scarcely a trace of blood in the washings. Next day the patient informed me that he felt so well that he could walk 20 miles. He was discharged on the fourth day. In Case 553 I removed a urate stone weighing $2\frac{3}{4}$ ounces from a patient aged 55. Next day he was walking about quite well, and was discharged on the sixth day. And in Case 633 I removed 3 ounces and 1 drachm of oxalate of lime stone from a patient aged 75 in 75 minutes. Next day I had the pleasure of showing

* 'British Medical Journal,' June 16th, 1894, p. 1296.

him to Surgeon-Colonel Hutcheson. He was sitting up in bed quite happy, save that he grumbled about his food being cut down. He was discharged on the ninth day.

I must now, in conclusion, once more invite your attention to the tabular statement of these 49 operations, which may be divided into three groups, corresponding with three more or less well-defined periods in my surgical career. The first group of six cases belongs to my pre-litholapaxy days, and were necessarily lithotomies, for no one ever dreamt of removing large calculi of those sizes by the old operation of lithotrity, with its numerous sittings. The second group of 15 cases down to August, 1884, belong to what I may call the period of transition, during which I was passing from lithotomy to litholapaxy, and learning how to operate by the latter method; and you will observe that the cutting and crushing operations alternated pretty regularly. There were six completed litholapaxies, seven completed lithotomies, and two cases in which I commenced by litholapaxy, but, as already explained, had to finish by lithotomy. Finally, there is the third group of 28 cases from August, 1884, down to the present time—a period during which I suppose I have been more or less expert with the lithotrite and aspirator, and amongst these there were only three cutting operations—namely, two suprapubic and one vaginal lithotomy, the remaining 25 cases having been disposed of by litholapaxy.

There is another operation for large calculi which has, during the last few years, been brought to the front, namely, perineal litholapaxy or lithotrity, which consists in making an opening from the perineum into the posterior urethra, and through this introducing large lithotrites or crushing forceps, the prostatic urethra admitting, of course, much larger instruments than the rest of the canal. I have no experience of this method myself, but as it has been advocated by no less distinguished surgeons than our President, Keith of India, and Milton of Cairo, an address of this kind would not be complete without a reference thereto, and I have no doubt that you, Sir, will give us your experiences of this operation.

The following tabular statement shows at a glance the results of the different varieties of operation for large stone performed by me :—

| Operation. | Number of Operations. | Average Age. | Average Weight of Stone. | Average No. Days in Hospital. | Mortality. |
|---|---|---|---|---|---|
| | | | ozs. drs. grs. | | |
| Suprapubic lithotomy ... | 4 | 27¼ | 5 5 0 | 34 | 2, or 50 per cent. |
| Perineal lithotomy ... | 14 | 42¼ | 2 5 23 | 30 | 4, or 28½ ,, |
| Litholapaxy ... ... | 31 | 52 | 2 5 2 | 10½ | 3, or 9⅔ ,, |

The average age of the litholapaxy cases was 52 years, 10 years greater than that of the perineal lithotomy cases, and double that of the suprapubic cases. The average weight of stone in the suprapubic cases was, however, twice that of the other two varieties of operation; but the period under treatment after operation in the litholapaxy cases was only 10 days, as compared with 30 and 34 days respectively in the lithotomy cases. Finally, the mortality, which in the suprapubic operation was 50 per cent. and in the perineal 28 per cent., was in the litholapaxy cases reduced to less than 10 per cent.

Now I am aware, of course, that four cases of suprapubic operation do not constitute a sufficiently large number from which to draw any safe or trustworthy conclusion. But a glance at the column of results in the first tabular statement will show that in proportion as I abandoned lithotomy in my practice in favour of litholapaxy, and as I gained experience of this latter operation, my results improved; and the fact that my last 16 litholapaxies for calculi of from 2 up to 6⅛ ounces were one and all successful shows what splendid results we may obtain from Bigelow's operation.

With results such as these before me, I have no hesitation in pronouncing Bigelow's method the safest and best for calculi of all sizes, in patients of all kinds and conditions, provided only that this operation is feasible. When not practicable, I consider that calculi up to about 3 ounces in the adult, and a corresponding weight in the child, are best removed by perineal lithotomy; beyond that, suprapubically. Six and one-eighth ounces is, as I have said, the largest stone that I have removed by Bigelow's method; but still larger calculi have been successfully removed by Keith, Keegan, and Cunningham in India, and by Milton in Cairo. So fully convinced am I of the vast superiority of Bigelow's operation over all others in saving human life and

suffering, that I would lay it down as an absolute rule that in no case, whether in the male or in the female, the adult or the child, should a stone, whether small or large, be subjected to a cutting operation till after trial litholapaxy is found to be not feasible.

Mr. Lockwood said he should like to show a stone which, having been removed in London, could not compare in size with some of those removed by the author in India. He had removed it from a farm labourer, who was placed under his care at the beginning of the year by Mr. Mark Taylor. In its present dry condition it weighed 4 ounces 360 grains. It had not been chemically examined, but apparently consisted of uric acid with a little phosphate upon it. It had caused its possessor singularly little trouble. It was so large and his bladder was so contracted that, in moving about, the stone could not alter its position. He pointed to a constriction in the middle, caused by an hour-glass contraction of the bladder. In spite of Mr. Freyer's results, it did not seem to be the sort of stone that could be attacked with the lithotrite. The bladder would only hold $1\frac{1}{4}$ ounces of water, so he was constrained to perform suprapubic lithotomy. He had selected that course because during the operation the patient was in a favourable position, and the operator could see everything that was being done, and easily control any hæmorrhage. He did not use a Petersen's bag. He remarked that one met with comparatively few cases of stone in the hospitals now, but one often had to open the bladder anteriorly for the treatment of tuberculous ulcers, tumours, &c., and he had not found that he gained an adequate advantage from using Petersen's bag. It was of importance, after the operation, to fasten the bladder against the abdominal wall, to prevent any extravasation into the cellular tissue. In this particular instance the operation was difficult, because the bladder was hard to get at, and the peritoneum was close to the pubes. He had never seen the peritoneum so adherent to the fundus of the bladder that it could not be pushed up. The man was very emaciated and ill before the operation, and suffered severely from shock after it, but he ultimately convalesced without a bad symptom.

Mr. Swinford Edwards said he had listened with great interest to the paper. With regard to the question raised by Mr. Lockwood as to Petersen's bag, although he thought he was right in saying that the originator was present that evening, it having been introduced by Dr. Garson, he was fain to say he had never found any particular advantage from using that contrivance. He had opened the bladder on a great many occasions, and had never used it; but he had seen it used, and it did not seem to have any special merits. It had merits, no doubt, before they had the electric light at their service, and before it was possible to examine the interior of the bladder by means of tubes, &c. It was useful then because it raised the trigone of the bladder towards the abdominal wall, and one could resect growths, &c., from the base; but for suprapubic lithotomy it was really not required. It was, of course, very difficult to determine the size of a stone which ought to be treated by a cutting operation. As to this, every surgeon must decide for himself. Those who were skilled with the lithotrite would attack larger stones than others; but even the skilled surgeons might get into difficulties, and have to convert a crushing into a cutting operation. Under such circumstances he strongly recommended median perineal

litholapaxy—*i.e.*, the Boutonnière operation—and crushing through the opening thus made. He had himself got into difficulties with the lithotrite on more than one occasion, and he referred to a case which occurred some years ago in the country. The patient was an old man with a stone in the bladder, which he attempted to crush. He succeeded in crushing it a little, but could not move it, as it was partially encysted over the pubes. He therefore did an external urethrotomy, and then passed in Bigelow's instrument through the perineum, by which means he dislocated the stone into the general cavity of the bladder, and there crushed it. The stone weighed 3½ ounces, and the patient made a good recovery. Quite recently he had crushed several stones in a boy of eleven. The operation became so tedious, as the parts would only admit a No. 6 cannula, that he thought it would be better to complete the operation in some other way, and he selected the median operation. The boy did well. He advocated this operation when the stone could not be crushed either by reason of its size or because the passages would not allow of its being properly dealt with. He thought it was preferable to lateral lithotomy. Mr. Lockwood no doubt did the right thing in his case, for with such a large stone most of them would agree that it would be best dealt with in that way.

Dr. Garson, referring to what had been said of the bag called Petersen's, said it was first used by himself, in conjunction with Professor Braune, nine months before Petersen had used it. It was of a pear-shape, and that shape was afterwards utilised by Trendelenberg and others. He believed that Sir Henry Thompson had modified its shape. Mr. Edwards had asked what were the advantages of the bag in the rectum. At one time the wounding of the peritoneum was considered a very important point, and he had heard from the lips of Lister and others that on a great many occasions, in order to distend the bladder and raise the peritoneum, they had had to distend the bladder to a considerable extent, and that even then there was not sufficient space between the pubes and the peritoneum that was desired. The advantage of the pear-shaped bag was that it raised the neck of the bladder, and, in conjunction with a moderate filling of the bladder, it gave double the space between the pubes and the peritoneum that could be obtained in any other way, even by great and unjustifiable distension of the bladder. Since he had first written upon it, distension of the bladder and rectum had been carried to a great extent in America, among other places. Before introducing it he had made a large number of experiments to ascertain whether any advantage was gained by larger distension of the rectum and bladder, and he had found that such was not the case. He had found that with moderate distension, say 200 grammes of water, most effect was obtained in regard to the raising of the peritoneum above the pubes. Another great advantage of distension of the rectum was that it brought the bladder right up to the surface, so that with the finger the whole of the organ could be carefully and thoroughly examined, and small growths, &c., could be safely removed.

The President observed that the author had laid great stress on getting through the operation as quickly as was compatible with safety, and it was with this object that he himself had altered the handles of his lithotrites as compared with the instruments he had previously used. He had found the handles with small wheels inconvenient to use and tiring to the hand, besides working slowly, and that the catch which changed the sliding to the screw movement was uncomfortable to the

operator. He had therefore adapted the lever catch from some French lithotrites, instruments dating as far back as the days of Heurteloup, and the screw was worked by means of a transverse bar with a corkscrew movement. The blades of the instrument were those commonly known as completely fenestrated ones. The result of the change in the handle and form of the lever, so far as he personally was concerned, had been greatly to shorten the time taken up by these operations. He could accomplish as much with these new lithotrites, on hard or soft stones, in about half the time as compared with the instruments of other construction. A few mornings previously he had crushed a uric acid calculus of about half an ounce, a fairly representative stone of its kind, with only one introduction of the lithotrite, the urethra being narrow, the prostate enlarged and brawny, and the patient a bad subject for a cutting operation. It was just one of those cases in which the operator felt that the passage of any instrument along the urethra was difficult and dubious, and might give rise to trouble. The whole of the stone fragments were then rapidly evacuated by the cannula and aspirator. He was sure this was a point of considerable importance where the prostate was large or the urethra small. He also referred to a case where a urate stone weighing a little over 3 ounces was broken up in 30 minutes, the lithotrite being introduced three or four times, and the entire operation completed under 40 minutes. As to perineal lithotrity, the President said that some years ago he had felt that the median operation for stone was, of all cutting operations, the best and the safest; but there was the difficulty that the wound would only admit the finger, and was not, therefore, adapted for stones of any magnitude. He then asked himself, How could median lithotomy be adapted to stones of considerable size? and it had occurred to him that Dolbeau's operation of perineal lithotrity was the plan to go upon, provided he could do away with the various drawbacks which attended the original proceeding. Dolbeau's operation had the great disadvantage that it involved dilatation of the neck of the bladder, and thus damage was liable to be done to the prostatic urethra, especially in young subjects, and this was why the operation fell into disrepute. It appeared to him that if he could adapt for this purpose crushing forceps of great power, and of no larger circumference than the index-finger, the difficulty would be got over. Crushing forceps for this purpose had been made for him by Messrs. Krohne and Sesemann, which had answered well. In a considerable number of operations for stone, some 300 or so, he had not met with many cases in which he had found it necessary to cut; but in some instances the bladder was in such a state as to require not only the removal of the stone, but thorough and complete drainage. It was in this class of cases that he had performed the operation of median lithotrity—cases in which the stone was larger than could be brought through after median lithotomy without breaking it up, and which also required bladder drainage. The 14 or 15 cases in which he had selected this operation had proved highly satisfactory, and he had never seen any evil effects follow this form of median lithotrity. In reference to suprapubic cystotomy, he had always recognised the value of Petersen's bag in drawing up the peritoneum, but in practice he had gradually ceased to use it.

Mr. Freyer, in reply, observed that it was best to give the weight of stones when dry. Doubtless, when a stone was removed whole, its weight when removed was the proper weight, seeing that it was its weight inside

the bladder ; but it was desirable to be enabled to compare it with a stone removed by lithotrity, the *débris* whereof, if weighed wet, would probably be found to weigh double its weight in the dry state. He thought the constriction on the stone, attributed by Mr. Lockwood to hour-glass contraction of the bladder, was possibly due to compression by the prostatic urethra. It looked very much like a stone which had been partly in the bladder and partly in the prostatic urethra. Among the collection on the table there were three or four instances in which deep grooves round the stone divided it into head, neck, and body, due probably to the corrosive action of urine trickling from the ureters when the stone was in position. With reference to Garson's or Petersen's bag, he observed that, like many other excellent things, it was very useful in certain cases, and a terrible nuisance in others. He had used it about three weeks ago in a case of tumour of the bladder lying on the base, and it did most excellent work, enabling him to bring the tumour right through the suprapubic opening and catch it with a pair of forceps, and to use a Paquelin's cautery to cauterise the pedicle. He remembered, however, several suprapubic operations for small stones where the bag lifted the posterior part of the bladder, pressing the stones against the pubes so that they could not be removed until the bag had been withdrawn. It was very serviceable for pushing the bladder forward when one wanted to get into the interior ; but, once inside the bladder, he thought one could work best, as a rule, by extracting it before proceeding further.

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*November 23rd*, 1896.

## MOTOR AND SENSORY APHASIA.

(*Word Blindness, Word Deafness, Mind Blindness.*)

By Alfred Mantle, M.D., M.R.C.P.

Although in each of the two cases of aphasia here related there was a combination of motor and sensory disturbance, it is chiefly on account of the sensory derangement of speech that I report them.

My first patient was a well-built man, aged 41, an artist by profession.

*Past History.*—A little more than nine years before he had had some slight epileptiform convulsions, and after one of these attacks he had paralysis of the right arm and leg, and was aphasic. The aphasia, however, was not so lasting as in the attack I am about to describe, for he went to work in 14 weeks, having recovered speech completely and the power of the right arm and partial power of the leg. Five years afterwards he had another, but

much slighter, attack, lasting a fortnight, when speech was again affected, and there was paresis of the right side. His health receiving a great shock he gave up the very active work he was engaged in, and had a long rest. He practically recovered, and worked fairly hard again, but complained of headaches and giddiness. The viscera were healthy, and there was no evidence, though a suspicion, of syphilis.

The attack I now relate commenced on October 29th, 1892, with no marked premonitory symptoms. He was gloomy the day before and shut himself up, and drew some curious pen-and-ink sketches, but did not complain of his head. He retired to bed, and his wife roused him early next morning, as he had an appointment, and she discovered that he was perfectly conscious but speechless; she noticed the tongue was drawn to the right side, but the features were quite straight. There was slight numbness all down the right side, but power enough in the hand to write slowly.

I was called in to see him at 8 p.m. I found complete motor aphasia, that is, he had lost all power over the motor part of speech, and the only sound he could utter fairly well was "o" and "a," and "u" indifferently. The tongue could only be partially protruded, and deviated to the right, and the lips did not move. There was slight loss of power in the right leg, less marked in the right hand. He could, however, write slowly with this hand, and asked me several questions in writing, which were intelligent and written correctly. He complained of the back of the head being painful, and of having a burning sensation in that region. During the first week he was very emotional and easily excited, and at the end of the week he was very drowsy and difficult to rouse, and the paralysis of the right side was complete, both for motion and sensation. There was marked rigidity of the right hand and arm, and the thumb was firmly contracted into the palm. The left hand was very tremulous and deficient in power, and sensation was diminished on the left side, but not so markedly as on the right. A curious spot of hyperæsthesia was discovered by the nurse on the inner side of the right knee, so sensitive that, if touched ever so lightly, he would spring up in bed and suffer agonising pain. He was now in a very sensitive condition, for the movement of lifting him up in bed to change his position had an extraordinary effect upon him, and produced a

drowsy and more or less unconscious condition, which was very marked during the whole of the second week. Motor power, however, on the left side was practically normal, and he could write slowly with the left hand. From the third week he gradually improved, gaining steadily more power in the right leg and arm, and recovering sensation. He was much interested in all that was going on, reading daily papers, and discussing topics of the day, by writing with the left hand, for he was none, or very little, better so far as his aphasia was concerned. There was, however, during this period of motor recovery a good deal of sensory disturbance, particularly from the eighth week to the eleventh, when another condition developed, that of sensory disturbance of speech.

It was noticed he was slightly deaf on January 19th, which increased during the day and became complete on the following day. Dimness of sight was also observed, and he suffered a good deal of pain in the head. Next morning he could not read writing, however large, but could read words composed of child's large printed letters, but these were only of use until 3 o'clock in the afternoon, when they could no longer be seen.

On the following day sight and hearing were both gone on both sides, but a lighted taper passed before his eyes produced a pupil reflex. The ophthalmoscope showed the fundus of both eyes to be normal. There was a good deal of difficulty in swallowing. He had a fixed, staring look—straight out; always plucking at the bed clothes with the left hand, and a meaningless sing-song was heard at intervals. He now continued deaf and blind for 10 days, and could only recognise his wife and nurse by the sense of touch, feeling their hands and articles of dress. On the eleventh day he showed signs of delight when the blind was drawn up and light admitted; he could then recognise the difference between the hands of his nurse and his wife. He was still deaf to words, but could hear sudden sounds. On the twelfth day he heard and seemed to recognise his own name; he also noticed details in dress of those about him. The next day he saw colour in some tulips placed before him, which evoked grunts of satisfaction. Pointing to his ears and eyes, he asked with his finger on the coverlet why he was deaf and could see so badly. Fourteen days after the loss of hearing he heard sounds at a distance—a dog barking—whilst he was comparatively deaf to sounds at his bed-

side, and on the following day he asked, by making the outlines of the letters on the coverlet of the bed with his finger, why he heard sounds—at the same time pointing towards the next house where a piano was being played—yet could not tell what was said by those about him.

He had now extended vision, pointing to pictures on the wall facing him, but the field of vision was very limited, and it was found he had right hemianopsia. He continued very deaf to ordinary word sounds; but the experiment of whispering the word "better" slowly in the right ear was tried. He heard it, and immediately began to write on the coverlet the whispered word, and showed signs of gratification. The same word spoken in natural tones produced an expression of pain and bewilderment. His mind continued to be very clouded, and he was unable to understand day from night or the time of day.

February 9th was the last day he made known his thoughts by drawing with his finger the outlines of letters forming words. He had during the day thought out and written a number of questions and was somewhat exhausted. His left hand, which he could only use, was said to be rigid in the evening, the rigidity passing off very soon; but next day his sight was very much worse and all hearing gone again. He now had a slight attack of influenza, which was prevalent at the time. He could no longer form the outlines of letters, and the only way he could express his thoughts was in pantomime. He, like an uneducated deaf-mute, made pictures in the air to express his wants, and his wife understood his drawings in a wonderful manner. Wishing for a chop, he drew the shape in the air. Wanting milk and soda water, he pointed to the sheet for whiteness and drew in the air the shape of a soda-water syphon.

Before losing all sight he had enjoyed seeing and arranging a bunch of lilies of the valley. He evidently remembered this, and drew in the air the shape of lilies of the valley, arching the stems and dotting them with flowers. His wife understood, and brought the flowers to him, when he was quite satisfied, and arranged them with care. His sight again came back, but he was still suffering with right hemianopsia. Although an omnivorous reader when well, he did not recognise, when tried, either letters or figure symbols, and when a paper was given him he turned it upside down, and by gesture asked why it was given him.

There were now (end of February) distinct signs of recovery of motor loss of speech, and he uttered his first word distinctly enough to be understood—"better." The right leg and arm also had much more power, but the arm was exceedingly sensitive to touch. He understood whispered language more easily, but was unable to recognise words in the ordinary strength of tone. Although deaf to words, he interpreted tones and gestures so well as to be conversant of much that transpired.

In March, mind blindness was most marked, though he had not so much difficulty in remembering objects as persons. His aunt, to whom he was very attached, was allowed to see him. He did not recognise her, but after she had left the room he drew with a pencil in the left hand the house in which she lived, with the road to it, the garden, and the dog at the gate, which was a very fair description of her abode. During this month his deafness gradually improved, but was more deficient on the left side than the right. The sense of smell was impaired on the left side. He saw better but had yet word blindness. He was able to articulate more, and used and understood more words, but made use of pantomime as well. The very sensitive spot on the inner side of the right knee, which had remained so all these months, could now be touched, he having asked nurse to lay her hand lightly upon it for trial. He tried to count but it was difficult, especially on more than one hand. He soon became more inquiring, and asked "what was it he used to do?" When told "to paint" he remarked, "What was that?" Upon pursuing the subject he was told he used to read books, when he replied "that sounded like it." He was now getting up daily, and greatly interested in building with dominoes. He took a little more interest in things, but at the end of March, five months after the attack commenced, he still had forgotten that he ever was a painter. He was one day anxious for a certain picture to be brought to him, which, as a matter of fact, he had painted; but when asked if he painted it he emphatically stated no, but that he remembered seeing a man paint it. He was very anxious to know what a book was.

In April he noticed the lettering upon half a crown, given in his hand, when he asked to have it read to him, repeating each letter after the nurse, and committing them to memory and comparing their form with other letters; he asked if these were what were contained in books. He could not remember his own

surname, and, when told his wife's surname, he indignantly denied it, and uttered her Christian name. He was now taking great interest in looking at pictures in illustrated papers, and was very critical. He was able to remember letters and words told him a few days ago, and it was interesting to notice what aid the fingers of the left hand were to his memory. If he wanted to remember a thing, he looked hard at his left fingers, and, as he remarked, he saw it there in a short time, but often after much puzzling.

The patient's condition from this time gradually improved. He was able to understand word symbols more readily day by day, and could read. He would repeat a word over again and again, after following the outline of each letter, and having been told what they spelled. He often employed a circumlocution of more general words instead of the special word he could not revive in his memory, and, instead of asking for "a pencil," would ask for "something to draw with." His great trouble was that he had forgotton so much. His mind blindness did not improve. and he could not recollect his most intimate friends when calling to see him. Neither could he recognise paintings which he had spent a great deal of time over, but little sketches which had cost him very little time and thought he could recognise as his work. In August he had partially recovered his loss of power, but he had still right hemianopsia, and his motor speech was very indifferent. His friends attempted to get him into the air, after which he seemed very much worse, for the movement upset him considerably. Early in September he had been reading, and was very cheerful before taking his afternoon sleep, but when he woke he was found to have a dazed look, and to have lost all power of the right side. On the following morning I found hearing and sight completely gone. The tongue could not be protruded from the mouth, but deviated to the right. Swallowing was difficult, and there was also loss of sensation and power of the right side. He was completely deaf to words, even when whispered, but had painfully acute hearing for sounds. There was one marked difference in his condition now than in his previous attack, which was that he had always been able to make known his various wants by writing with his finger the outlines of the letters upon the sheet, which power he lost in this attack, when he was reduced to pantomimic signs. The word deafness

and all vision was absent for four weeks, but he had right hemianopsia for several months afterwards. While deaf and blind to words, as well as having complete paralysis of motor speech, he expressed a wish to make his will, and made his wishes known by forming the outline of the letters on the sheet of the bed. He also made his lawyer and wife understand that when they meant "yes" they were to tap his hand, and when "no" they were to cross it. To satisfy him the will was executed, and with his left hand he very badly wrote his signature.

He now gradually recovered from word blindness and very slowly regained power in the limbs, but the motor part of the aphasic condition was very slow in recovering, for he was unable to speak until the following April, when he started and rapidly regained speech, it having been absent since its partial recovery for 32 weeks. On getting downstairs he almost at once commenced to strum on the piano, and it was noticed that he had no difficulty in reading music. This test, however, had not been tried when he was word deaf.

At the end of the second year he was able to walk slowly on crutches. His zest for painting returned, and he found the greatest pleasure in sketching from nature at Filey, where he was convalescing. His mind was a complete blank with regard to paintings he had done before his illness. His power of motion steadily returned, and at the end of the third year he could dispense with his bath chair. It was very curious how, in the early period of his convalescence, movement of the body, that is, to another room, brought on the sensory disturbance of speech for perhaps 24 hours. This occurred on three or four occasions.

Four years have now elapsed since the attack came on, and I have quite recently had a chat with the patient in his studio. He tells me he has tried hard to paint during the last year, but he is so disgusted with his work that he has practically given it up. To my uncritical eye his work looks very passable. He says, however, that his difficulty is in trying to remember how he used to do it, and when he finds he is doing the thing wrong, he is so dissatisfied with his efforts that he has ceased making further attempts. He can, however, do pen-and-ink work exceedingly well. On asking him if he remembered painting the pictures about his room he said he did not, but he still thinks he saw another man paint one of them. He describes himself as being a

better judge and more critical than ever he was before, but no workman; and this is not through want of muscular power, for that has quite recovered.

He has been colour-blind ever since he was 15, his difficulty being to distinguish green from red. On inquiring if this is any worse or is in any way explanatory of his failure, he says not, but if anything he thinks the condition a little better. He has always had an ambition to become an author, and has written considerably, but he tells me that he now finds this work most difficult, his power of concentration being limited and thought slow. He has a very good vocabulary, however, when talking, and never wants for a word, though there is sometimes an occasional hesitancy in pronunciation. Contrary to Lichtheim's experience, the sensory aphasia in this case of total aphasia cleared up before the motor.

Another case of sensory and motor aphasia came under my care at the Royal Halifax Infirmary in the month of February. I had previously seen this patient five years before in consultation with Dr. Steele, of Halifax, when he was suffering with paralysis of the extensors of the left forearm, which had come on quite suddenly. There was no disturbance of speech at this time. He is said to have recovered from this attack. Two and a half years afterwards he had an epileptiform seizure and partially lost the use of the right leg and foot, from which he recovered; but he had subsequently at intervals slight fits, one of which ushered in the present condition and was attended with twitching of the right side of the face. There was a clear history of syphilis, made out before, but the condition of the patient now was such that he could give no account of his illness. "I really cannot tell you, I am sure, just now," was his answer to every question put to him, and it was evident he had no comprehension of word language. He read with great difficulty figures, and could not read printed matter accurately, but could make out some letters. He could not recognise a bell on the table, but could recognise a watch and a knife. When a water pipe was pointed at he could not say what it was, but said "hot." Apparently there was no defective eyesight, but an exact perimeter tracing could not be taken on account of the patient's inability to comprehend what was wanted. The motor part of speech was good, and there was no paralysis, and his gait was normal and so were the organic reflexes. The

patient looked in good health, and apparently was always in good humour, readily pleased, but not in any way emotional or childish.

On further examining the aphasic condition, he seemed to have a more or less complete comprehension of the uses of the objects shown but could not always give the correct designation. Some things shown he remembered easily and could pronounce their name, others he could not name; but if he thought for a time he sometimes gave the correct name or a similar sounding word, or substitute a roundabout phrase as an equivalent. Occasionally, when taken suddenly, he seemed to answer instinctively and generally correctly. A pencil he knew the use of but could not name. A pen he called "pea," then "pen." A knife and fork and book he knew; a cork he knew, but called a bottle "brot," and "medicine" he could only pronounce partially. A key he called "lock," recognising its use. He knew his own name, but occasionally transposed the two parts. In the identification, then, of objects shown he occasionally used the association of ideas. Water pipe he called "hot" and the key "lock," but mispronounced some words.

On investigating the visual sense in reading printed or written matter he was found much more incorrect. He could read figures accurately, though with some hesitation in some cases. When spelling out printed words letter by letter he was very incorrect, and did not always give the same interpretation on two consecutive occasions, while in time he might stumble into a correct reading. When reading and pronouncing words there was similar hesitation and inaccuracy, while there was often an approximation to the sound; for example, he called London "Luddenden," the name of a local village, after considerable doubt. His own name he was able to read correctly. On testing his capacity for repeating words there was evidently a degree of inability to recognise certain words and phrases. "What is your name?" he replied to correctly. "How old are you?" he could not understand. Certain words he was deaf to and could not repeat, and through the word deafness he was unable to comprehend, and allowed his mind to dwell on one or two stock phrases, which were always ready and from which it was difficult to divert his attention. His memory was very defective, and he could not say where he lived or the town he lived in (but the word deafness might account for this), neither could he say how long he had

been ill. On testing his writing from a copy, it was found he made the same errors as in spelling but did not make the same blunders twice. At times his writing was quite clear, at others quite unintelligible. He could write his name, but sometimes transposed it and sometimes left out letters. He could copy figures more accurately than letters.

His condition seemed to improve a little, and remained bright and cheerful. He was able to talk and answer simple things correctly, and his memory was a little better. Early in the morning of March 24th he went to the ward lavatory, and was found afterwards in an insensible condition. Apparently he had had a fit but was quite unable to speak. There was complete paralysis of the right leg, the limb being quite flaccid and paralysed, with rigidity and contracture of the right arm. The eyes and face were unaffected. He could only partially comprehend what was said to him, and could make no response. He gradually recovered power in the leg and arm, and made attempts at speaking, and could utter one or two words—"very nicely," "yes," "getting on," and a few others, and seemed to comprehend more what was said, but his attention was very easily overtired.

On May 8th he had another attack, when he was quite speechless and collapsed. The nurse had observed some twitching of the muscles of the right side of face when he awoke; he then lost the power of his right arm, but the leg escaped. The condition of paralysis was succeeded by one of rigidity. There was difficulty in swallowing, and the patient was very irritable. He seemed to understand a little more what was said to him in a few days, but recovery was very incomplete, for there was no return of intelligible speech, and there was complete loss of power over the right hand, and partial loss of power of the right leg. He became very restless, constantly attempting to get in and out of bed, and was so noisy that we could no longer retain him in the infirmary. His condition is very pitiable at the present time; he cannot understand anything said to him, has complete motor aphasia and right hemiplegia, is very emotional, and presents all the symptoms of cerebral softening.

Although motor speech has been involved in both of these cases as well as sensory, as I have said before, I have brought them forward chiefly on account of their being good examples of sensory disturbance of speech. In the first case, that of the

artist, it is remarkable how compound was the aphasic condition, and it is most probable that there was thrombosis of the Sylvian artery, for all the cerebral centres concerned either in the expression or the interpretation of speech are situated within an area supplied by this vessel.

The centre for motor speech (the posterior part of the third frontal convolution and the lower part of the ascending frontal on the left side) were first affected, and the ascending frontal convolution containing also the cortical centres for the movement of the tongue and lips accounts for the early loss of these movements in this case. The part of the brain concerned in the sense of hearing was next affected, which is the posterior half of the first temporo-sphenoidal convolution on the left side. When this region is diseased there is often transient deafness in the opposite ear, as was the case here. The fact observed that he could hear a whisper and understand the word when whispered very softly and slowly is one I find no record of, but points, I think, to overstimulation of the centre by the ordinary voice, preventing perception of sound characters. The hearing of both ears went simultaneously, but the right, or that on the opposite side of the lesion, was the first to recover.

In word blindness a lesion of the first temporal convolution is found in the majority of cases. The hemianopsia was probably due to involvement of the occipital lobe, for the pupil still continuing to respond to light supports Wernicke's suggestion that the symptom is then due to a lesion in the occipital cortex. The amaurosis which has been present in both attacks was probably cortical also. The optic nerve always looked healthy. Mind or object blindness was part of the visual disturbance. It has been produced artificially by Munk in dogs by extirpating parts of the occipital lobe. Loss of smell, which was associated with the sensory aphasia, is thought by Gowers to be due to softening of the root fibres at the commencement of the fissure of Sylvius.

I have not mentioned the fact before, but this patient had visual hallucinations to which Professor Henschen in his work on the 'Pathology of the Brain' directs attention, as likely to trouble a patient with homonymous hemianopsia when that symptom is of cortical origin. He said he could always see in the blind half of the field of vision a man at the back of his head holding two lighted candles. Bastian has strongly pointed out

that lesions in the posterior parts of the brain are more apt to produce hallucination than lesions in the middle or anterior parts. The amount of sensory disturbance was very remarkable in this case, and might have suggested at an early period a purely functional origin; but as Wyllie says, in 'Disorders of Speech,' p. 375, "The very existence of word deafness or word blindness in any case should suggest an organic rather than a functional cause."

In the other case I have recorded, there is not much to note except that the sensory aphasia came on first, and long before the motor condition; also that there was an absence, as far as could be made out, of any hemianopsia, with the word blindness. The probable cause in this case is thrombosis, which may be proved in a short time as the patient is now *in extremis*.

An important question in connection with aphasia is its influence on testamentary capacity. My patient, as I have related, made a will and signed it; but as Gowers remarks, word deafness is incompatible with will making, inasmuch as the testator cannot understand what is said to him.

This patient's will was entirely made on his own instructions, for he had no agraphia and was aided by pantomime.

Since a short notice of this paper was published, Professor Gairdner, of Glasgow, has written to me for fuller particulars of my patient's will making, as he is to be called as a witness in a case next month in which it is to be attempted to reduce a will made by an aphasic whom he attended. Dr. Gairdner says: "I touched briefly upon the subject of the testamentary capacity of the aphasic in my address at the Liverpool meeting of the British Medical Association, but it has always appeared to me one of great difficulty and depending essentially on details."

Mr. Spencer Watson observed that the aphasia in the first case was due to some disturbance of the intellectual capacities, and he asked on what ground the author called it sensory? He suggested that it ought to be classed as an intellectual aphasia. He thought that possibly the emotions might have had something to do with one of the transient attacks of aphasia in the first case.

Dr. Mantle, in reply, said he thought the symptoms came under the form of aphasia generally looked upon as sensory inasmuch as there was complete disturbance of the senses of hearing and of seeing in contradistinction to the other form of aphasia which was wholly due to an affection of the motor part of speech. It could hardly be described as transient seeing that the patient was word blind for 28 days. The hemianopsia altogether lasted for nearly 12 months and the word deafness also lasted a considerable time.

# "THE URIC ACID DIATHESIS": ARE WE TO CONTINUE TO BELIEVE IN IT?

By Alexander Haig, M.A., M.D. (Oxon.), F.R.C.P.

It has been taught for many years that uric acid given to mammals appears in the urine as urea.* If this is so, then it is impossible to increase the uric acid in a man's body and blood by administering it in his food, and it is obviously a matter of no consequence how much of this substance his food contains. Thus almost the only way in which a man can come to have excess of this substance in his body and blood is by excessive formation, more or less aided by failure in excretion. That some have such excessive formation, and suffer from excessive uric acid as the result of it, is the belief of those who write about "the uric acid diathesis."

This was my own belief till some five years ago, when I first came on some facts which appeared to throw doubt on the researches from which the above conclusions were drawn. Then, as the result of some further investigation, I found that uric acid, given by mouth to man, did get into the blood, and eventually into the urine, and produced in its passage well-marked physiological and pathological evidence of its presence in the body.

I also found that it could be obtained from the urine grain for grain, in proportion to the amount swallowed, and that to demonstrate this in anybody it was only necessary to attend to the conditions which influence its solubility in the blood. I was also able to point out† where previous experimenters had probably gone wrong, in mistaking the rise of urea which follows the taking of uric acid for the result of the conversion of that uric acid into urea; when, as a matter of fact, the uric acid was not converted at all, but could be recovered in proportionate quantity from the urine in the few days following its ingestion. I further pointed out that a similar rise of urea follows the taking of a small dose of any dilute acid (sulphuric, for instance, which contains no nitrogen), and is one of the effects of the influence of the acid on

* Foster, 'Text-Book of Physiology,' 5th edition, p. 757.

† 'Journ. Physiol.,' Cambridge and London, 1893, vol. xv.

the circulation and nutrition of the body, an influence which uric acid also produces.*

Now, these results of mine at once raised the question, How much of uric acid disease is due to this introduction of the substance in food, and how much is due to excessive formation, or "the uric acid diathesis"? and it is to the answer I appear to be getting to this question that I specially wish to direct your attention.

Further, these results of mine, though important in physiology, are of far greater importance in medicine, and medicine also furnishes one or two means of putting their accuracy to the most searching of practical tests. For, if the uric acid introduced into the mouth with food remains as uric acid in the blood and body till it is excreted in the urine, we have at once another and a potent cause for excess of uric acid in the body, as it is easy to show that a man on ordinary diet may put into his mouth as much as 6 or 8 grains each day. Multiply this by 365, and this again by 30 or 40, and suppose that only a fraction of it all is retained in the body, it may still amount to several pounds of uric acid, or more than we generally find in the human body after death; in a word, introduction alone will amply suffice to account for all the uric acid we find in the human body, and the hypothesis of excessive formation is unnecessary, and may prove to be completely erroneous.

With regard to the elaborate theory of Horbaczewski as to the formation of uric acid from the nuclein of white cells, which has, I know, captivated some of my fellow-workers, I must refer you to my work,† published some months ago, for all the facts and arguments against it, which it would take too much space to reproduce here, and will merely say, in passing, that many of his facts seem to me to be susceptible of quite a different explanation from that which he gives them. But if I am correct in my researches, and as to the conclusions we may draw from them, we can now substitute in theoretical medicine a proposition which can be demonstrated for a hypothesis which cannot be so; and in practical medicine we have to deal with a well-known substance, the introduction of which into the body is almost completely

* *See* also a paper on the effect of "Exercise on the Excretion of Urea," 'Lancet,' London, March, 1896.

† 'Uric Acid as a Factor in the Causation of Disease,' 3rd edition.

under our control, instead of with a shadowy foe, "the uric acid diathesis," whose position could never be clearly defined.

Thus the question before us is—

Shall we continue to believe in what is little better than a myth, "the uric acid diathesis," with a supposed tendency to excessive formation of uric acid; or shall we look and see that excess of uric acid in the body, and all the diseases to which it gives rise, can be quite as well accounted for by the gradual accumulation of the quantities daily swallowed in the food, which can be easily demonstrated without any hypothesis?

Further, there is this enormous practical difference between these two poles of belief, that on the old mythical theory we can only condole with our patients on their misfortune in having inherited the diathesis; but, on the new facts and conclusions, we can tell them that if they stop the introduction of uric acid in their daily food, and clear out the stores already accumulated in their body, they will very soon be free from it, and from all diseases produced by it. When I first joined the profession I was told that my troubles were part of an inherited diathesis which could be relieved by drugs, but could not be eradicated; to-day, however, this diathesis, and all its attendant miseries, have vanished into thin air, because I have my uric acid under control.

Now, those who thus spoke of my diathesis were ignorant of two very important facts—

(1) That excess of uric acid in the blood was the cause of all my troubles;

(2) That I was swallowing and passing into my blood some 6 or 8 grains of it every day with my food.

The proofs of these statements range themselves under two heads, Physiological and Pathological.

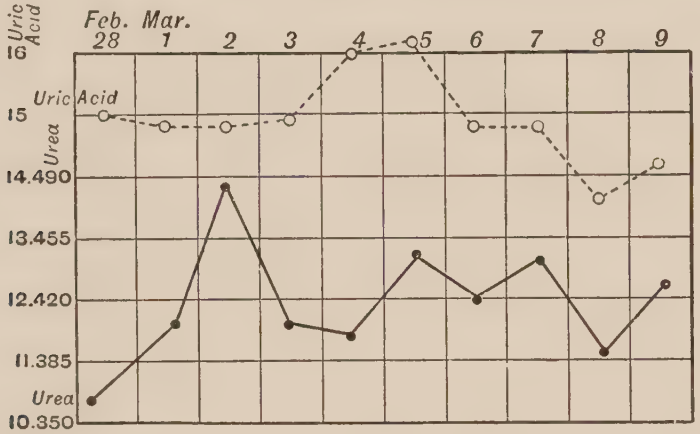
Under the Physiological, I need only mention my own experiences, which are fully given elsewhere, and I will point to the two figures which show my urinary excretion—(1) when I was still introducing some 3 to 5 grains of uric acid every day with my food; and (2) when all sources of introduction have, as far as possible, been eliminated.

In Fig. 1 you see that uric acid is constantly above the relation to urea of 1 to 35, which shows that uric acid was constantly passing in some excess through my blood, and my notes show that

this produced many well-marked and unpleasant symptoms, from which I was never entirely free.

In Fig. 2, the uric acid, though it fluctuates a little from day to day, is practically always close to urea in the relation of 1 to 35, which means that little or no uric acid is passing through my blood,* and this is the condition in which I live at the present

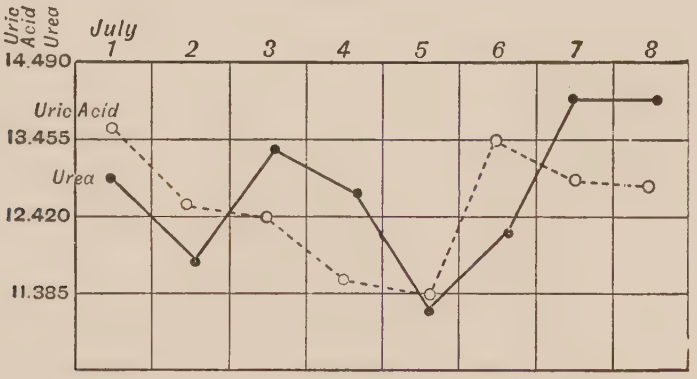
FIG. 1.




day, and in this condition I have complete and enduring immunity from all the signs and symptoms of my supposed "diathesis," though these can be brought back at any time by swallowing a little uric acid or xanthin, or the foods that contain them.†

With regard to Pathology, as I have been gradually learning more and more accurately how to rid myself of uric acid and

FIG. 2.




eliminate it from my diet, I have also gradually been learning how to apply this knowledge with more and more effect to the prevention, relief, and cure of kindred troubles in other people; and I can now point to scores and scores of cases and reports, many of them most valuable ones, from members of the profession, not in

* *Op. cit.* † *Op. cit.*, chap. iii.

England only, but wherever the English language is read and spoken, from men and women who had suffered just as I did from a supposed incurable diathesis, but who have obtained, or are obtaining, practically complete immunity from their troubles. Thus proving, in the most convincing and pleasant manner, that the remarks so frequently made some years ago, when I first brought the subject forward, that I had some idiosyncrasy, and that it was unsafe to argue from my body to that of others, is absolutely false and without foundation in fact; proving also that all these people suffered just as I did from the continual daily introduction of excess of uric acid, and the gradual accumulation in the body of certain stores from this excess.

There is thus to my mind, at the present day, absolutely no proof that the most gouty man in the kingdom forms, or has ever formed, uric acid in any greater relation to his urea than 1 to 35; and at that relation I believe we all form it.

It is an obvious corollary from this that a man may have too much uric acid if he has too much nitrogen, and also too much urea; but if he has only the right (physiological) quantity of urea, he will practically not have too much uric acid, unless he swallows it ready formed in his food and drink.

As regards the expression "uric acid diathesis," one might almost as well talk of a strychnia or belladonna diathesis, because, on administration of such drugs, certain well-known symptoms follow. Uric acid, like these, is an extremely toxic substance, and its administration always produces certain definite symptoms; and thus, so long as my diet, with its constant daily introduction, remained unaltered, "the diathesis" of course remained incurable.

The effects produced by administering uric acid are, at first, pleasant and stimulating, and its later unpleasant depressant effects have only too often been completely overlooked, or credited to other things; and, owing to the mistaken notion that uric acid could not be introduced into the body, no symptoms have been expected to follow its ingestion. The symptoms, however, are clear enough when looked for, so that, as I have been saying for some years, if uric acid is not toxic, we must have a new definition of toxicity; and that definition will exclude most of the drugs in the pharmacopœia.

On the other hand, it is easy to see, when we consider for a moment that uric acid is introduced into the body in the dead

tissues of all animals, their extracts and decoctions, and in the alkaloids of tea, coffee, and cocoa, that men vary enormously in the quantities of these substances they consume; and when, further, we reflect that the amount of uric acid that will be retained from this introduction varies to a great extent with such factors as exercise, clothing, temperature, and climate, we can see at once many reasons why the results of flesh-eating and tea-drinking should differ greatly in different people; the difference, however, is often more apparent than real; and I have yet to be convinced that any member of the human family can continue to swallow these substances for many years with impunity.

For these reasons I believe it is mere nonsense to say, when an adult in some condition of disease (which generally affects, by the way, the solubility of uric acid in the blood, and so its excretion) excretes day after day a decided excess of uric acid, as in Fig. 1, that he forms excess of uric acid; you must first look and see that the common causes of such excessive excretion, namely, introduction over a long series of years, conjoined with more or less deficient excretion, have not been in action; and only in the complete absence of these common causes can the assumption of a plus formation of uric acid be justified.

As I have already said, a man may have too much uric acid, just as he may have too much urea from consuming excess of nitrogenous food; and this is, perhaps, no very uncommon dietetic error among the richer classes. But even here I doubt not that the introduction of ready formed uric acid is by far the larger and more important factor in the causation of disease.

In conclusion, I do not ask you to believe that there is no such thing as "the uric acid diathesis," simply because I say so; still less would I ask you to believe in its existence, because those who investigated the matter, some twenty years ago, saw no flaws in their reasoning. There is a better course open to you, namely, to put the matter to the test of experiment, and judge for yourselves.

When you see a patient who passes a constant excess of uric acid, with or without gravel or calculus, as in Fig. 1, and suffers at the same time from high blood pressure, headache, mental depression, sleeplessness, frequent bilious attacks, with anæmia, myalgia, arthritis, and other secondary symptoms; and when you put such a patient on a diet which introduces no uric acid; and at the end of a year or 18 months, when the uric acid previously

stored in his body has had time to be eliminated, you find a urinary curve resembling that in Fig. 2; and that, at the same time, all the above signs and symptoms are steadily and completely absent,—and when you see this, not in one case here and there, but in every case in which diet is properly attended to, then you will be ready to agree with me that "the uric acid diathesis" is a myth.

My own experience in the matter is absolutely convincing, and I feel sure that those who will take the trouble to test the point for themselves will soon see clearly that all that has to be done to obtain immunity from the so-called "uric acid diathesis" is to give up the bad habit of swallowing uric acid.

Dr. RAGLAN THOMAS said it was only a few months since that he had become acquainted with the author's book and had put his method to the test of practical experience. He himself was one of those unhappy people who considered themselves victims of the uric acid diathesis. He said he had derived the greatest benefit from adopting the diet and treatment recommended by the author. He had also put it into practice in several cases of different kinds. One of these patients was apparently dying a month ago. She was a young lady aged 29, who had chronic disease of the heart and lungs, was hemiplegic, and in addition had recent pleurisy with effusion. She was tapped on two occasions, and was in a very alarming state indeed, with albuminuria, anasarca, dyspnœa, high-tension pulse, and severe palpitations; in fact, she was almost moribund. He had tried keeping her on a milk diet, but this she could not digest, so he was compelled to allow her to take beef tea and the usual articles of an invalid's diet. Thereupon her dyspnœa, albuminuria, and other symptoms became greatly aggravated. He had tried various peptonised foods, as as she got worse on beef tea and milk, and ultimately he placed her completely on peptonised milk with farinaceous and other vegetable food, when she rapidly improved, and at present she was not only alive but was able to walk, having entirely got rid of her albuminuria, anasarca, and dyspnœa. He had tried the treatment in many other cases with signal success. He asked for further information on the following point: the author's chief argument appeared to be that no uric acid is formed in the human body; therefore, if one excluded uric acid from the diet there should be no uric acid voided at all. He himself did not think this was so. Even when one lived entirely on a vegetable diet, excluding meat, eggs, coffee, &c., there still remained a proportion of uric acid in the urine. He asked how the author accounted for the acid that remained in spite of the diet, and for the harmlessness of this, whereas a fractional addition often caused such serious mischief.

Dr. HAIG explained that uric acid was formed in the body in the proportion of 1 to 35 of urea, and he believed that proportion to be unalterable. If one swallowed a beef steak from which all the ready-formed uric acid had been extracted, he would still form uric acid in this proportion.

Dr. RAGLAN THOMAS asked where this proportion of uric acid came from.

Dr. Savill approved the author's theory in general terms, but asked the same question as the preceding speaker, viz.: Had the author tried a diet which was absolutely free from uric acid over a considerable length of time, and had he thereby absolutely eliminated uric acid from the urine? That was the crucial test, for if he could do that, he himself did not see how anybody could refute the facts which the author had emphasised and had argued out. The author's results depended very much upon the accuracy of the methods employed, uric acid being very difficult to measure with accuracy. He asked whether the author had more recently used the method recommended by Gowland Hopkins, which appeared in some respects to be a better process than that of Haycraft, and, if so, had he obtained the same results?

Dr. Fortescue Fox asked how the author accounted for the case of children, who almost from infancy passed large quantities of uric acid crystals. He referred to the case of a girl 9 years of age, both of whose parents showed gout in marked degree. This child, under any kind of diet, continued to pass large quantities of uric acid. In speaking of the uric acid diathesis, it appeared to him that the author had mixed up two things, viz.:—(1) a condition which was essentially a diet disease, and could readily be cured by dietetic measures; and (2) one which must be regarded as a hereditary defect in tissue change, in which diet produced very little effect, and in which there was copious formation of uric acid.

Dr. Vaughan Harley thought the author's diet was really a treatment and not merely a diet. He urged that if uric acid were always formed in the body, even in spite of diet, they were justified in accepting a diathesis, *i.e.*, a tendency to excessive formation of uric acid under certain circumstances. Some persons, especially boys, excreted large quantities of uric acid during the first eight days of life. It appeared that as years went by the excretion of uric acid diminished, and he asked the author if he had any evidence that healthy old men had more uric acid in their tissues than a healthy man at 40. The assertion that uric acid could not be formed in the body was contradicted by many researches in connection with leucocythæmia, in which disease there was a marked increase in the excretion of uric acid, the total quantity amounting to 4, 5, or even as much as 6 grammes. He had met with as much as 4 grammes himself. These patients were taking ordinary sick diet. Stadthagen had compared two individuals on the same diet, one healthy and one suffering from leucocythæmia. The healthy subject excreted 33 grammes of urea, and the other 30·1, with 0·577 and 7 grammes of uric acid respectively. It followed that with the same food and the same quantity of it, the leucocythæmic patient excreted nearly four times the quantity eliminated by the healthy man. This proved the possibility of excessive formation of uric acid in the human body. Then, too, it was increased in malignant disease, though in this condition, as the alkalinity of the tissues was diminished, it ought, on the author's hypothesis, to be deposited in the tissues. This was so much the case in malignant disease of the liver that, if the excretion of uric acid were not materially increased, he would be disposed to doubt the malignancy. It did not follow that, because the author could sometimes reduce the formation of uric acid, that there was, therefore, no such thing as a uric acid diathesis.

Dr. Ewart observed that Dr. Haig's researches had done more than any others to bring into focus the most important practical questions in the pathology of gout and of allied disorders. He wished all could feel

agreed that these questions had received their final answer in the conclusions to which they had listened. The author had referred to the fact that uric acid was taken in day by day with the food. He had dealt with this quantity without alluding to any possible disintegration or chemical change to which the uric acid might be liable in transit; and, assuming presumably that it was not destroyed, he had insisted that it must be either passed out of the body in sufficient amounts day by day, or that by degrees the system must become saturated with it. An argument against this simple way of stating the question has often been founded on the circumstance that many persons who take large quantities of nitrogenous food do not develop gout nor any striking excess of uric acid; whilst, on the other hand, some persons who take relatively little nitrogenous food develop gout and deposit uric acid in their tissues or pass large quantities of gravel. These facts favour the assumption that the system possesses means of disposing of any considerable excess of uric acid ingested, but that this mechanism is not necessarily always active, and they throw doubt upon the assumption that uric acid introduced with the food is practically indestructible. With the kind collaboration of Dr. Buckmaster, the speaker was carrying out at the present time certain investigations as to the behaviour of uric acid under the influence of digestive agents. So far as they had gone the results seemed to corroborate Dr. Haig's views, insomuch that uric acid was not destroyed in the stomach and not dissolved by it during the acid stage of digestion, whilst pancreatic digestion, on the other hand, favoured, by its alkalinity, the solution, and therefore probably also the absorption, of uric acid. Even, however, if these results should be confirmed, there would still remain the question as to the behaviour of uric acid in the small intestine, in connection with which strict experimentation is more difficult. Moreover, absorption is but the first step; there remains a long gap in the history of uric acid as it travels from the alimentary canal to the kidney. In the blood as well as in the tissues it is exposed to many influences, which must make us hesitate to take it for granted that the uric acid which is ingested necessarily reaches the urine. We are not in a position either to assert or to deny that it is so. On the other hand, we have the best grounds for concluding that, in addition to that which may be supplied with the food, some uric acid is formed in the body itself. Great importance attaches to the fact, which has been experimentally proved, that the formation of uric acid in the tissues is not a uniform quantity in all persons, nor one which is necessarily constant in each, though usually it is fairly constant from day to day in health. The slight variations which do occur in the individual independently of any change in the diet would suggest that the great variations which are observed in disease are also largely independent of the food supplied, and that great oscillations are liable to occur in the rate as well as in the quantity of the formation of uric acid. Many other points of interest had already been dwelt upon by other speakers, and he would conclude by asking Dr. Haig to refer in his reply to the question as to the toxicity of uric acid, which was one intimately connected with the whole subject under discussion.

Mr. FREYER suggested that if the author's theory were correct the surgeons would have to apprehend that soon there would be no more stones to remove from the bladder, &c. He asked how it was that in the north-west provinces of India and in the Punjab, where the natives' diet was composed of milk and cheese, pulse, lentils, wheat, rice, and the like, that stone was so extremely common.

Dr. Shuttleworth asked how the author explained the results of Bouchard's experiments in which large quantities of uric acid were given to animals without producing any toxic effects. Would he explain this on the assumption that they were given in an insoluble form and were, therefore, comparatively inert? The author had referred to xanthin, and he asked him whether he attached any importance to the leucomaines which were closely allied to uric acid. It had been said that uric acid had been condemned on account of its bad associates, and that it was really the leucomaines which did the mischief.

Dr. Haig, in reply, said he had merely wished to raise the question whether they were to continue to believe in a uric acid diathesis. He did not wish absolutely to deny its existence. The uric acid given in Bouchard's experiments was given to animals, and they did not wait to see that it really got into or remained in the blood. Some years ago it had been suggested to him that he ought to inject uric acid into animals to prove that it affected blood pressure. He had done so but had never published the results because the experiments proved nothing except that the uric acid did not remain in the blood. When within a few minutes of the injection of considerable quantities, the animals were killed by being bled to death, the blood contained no more uric acid than that of a normal animal. He had come to the conclusion that nothing whatever could be found out by that method. When administered to a man it did not at once remain in the blood. Uric acid swallowed one evening would not affect the subject at once, but would poison him on the morrow or the day after, when the condition of the blood favoured its solution. He suggested that the toxic symptoms had been generally overlooked because they were not sought for at the right time. The first effect was that of a stimulant. He had no experience with regard to the leucomaines. So far as he was aware all forms of xanthin had physiological effects identical with those of uric acid, and he had classed leucomaines with these in his book. If, when uric acid was absolutely excluded from the diet, stone still appeared in adults he confessed that he could not explain it; but from what he had heard a large number of men and children in India consumed considerable amounts of nitrogenous food in one form or another. A friend of his who had been investigating the subject in India had told him that the men and boys got the best of the food, the women taking what they left, and the girls anything they could pick up. The women and girls did not suffer from stone, whereas the men and boys did.

Mr. Freyer pointed out that Hindoos never touched meat under any circumstances.

Dr. Haig, continuing, said that would come under another head. He did not know what part of the population of India his friend was referring to. It was quite possible to get too much uric acid by eating too much nitrogenous food. It was impossible to prevent the formation of uric acid. Every one formed some, and if they had too much nitrogen then they might have too much uric acid, but this did not prove a diathesis. Garrod used to believe that the cells in the kidney had a numerical relation to each other in respect of the formation of urea and uric acid—that, say, 30 to 40 cells formed urea and one cell formed uric acid. He pointed out that children formed and excreted three or four times as much urea as adults in proportion to body weight, and consequently they formed and excreted a larger quantity of uric acid. That was why children were peculiarly liable to rheumatism and stone. That

fact did not suffice to prove the existence of a diathesis because it was only a certain proportion of children who still retained enough to produce pathological effects, and many of these had directly introduced a large quantity in their food. It was possible to obtain definite results with large quantities of uric acid, and he undertook to prove this in any one who cared to put his assertion to the test. The case of people who produced large quantities of uric acid with little nitrogenous food was often not very difficult to explain, for people who took little food might take that little of meat, and might drink little but that little might be tea or coffee. He had published his results in connection with leucocythæmia in his book, in which he had pointed out that supposing this to show excessive formation of uric acid one ought not to be able to diminish the uric acid by a solvent; yet he had been able by means of soda salicylate to diminish the ratio. Starting at 1 to 12 he had brought it down to 1 in 20, and then to 1 in 30. The explanation he gave of the excess of uric acid in leucocythæmia was that there had been a great storage of uric acid in the enlarged spleen during the febrile stage at the termination of which its excessive excretion began. If the excessive formation and retention were not renewed he believed that the large excretion ultimately came to an end. With regard to the excretion of uric acid in malignant disease he believed that anything which caused body wasting increased the alkalinity of the blood and increased its power of holding uric acid in solution, and this caused its increased passage into the urine as observed by Dr. Harley. The condition in old men was exactly the converse of that in children; they formed less both of uric acid and urea. His point was that diseases which were said to be due to a diathesis had been completely cured by controlling the introduction of uric acid. If this were possible, and he had shown it to be so, it was no longer possible to believe in a diathesis because a diathesis was held to be incurable. In childhood large quantities of uric acid were passed, and the whole production might thus be got rid of, but if uric acid was also introduced in excess with food, this would lead to retention. He still continued to use Haycraft's method because he had found it to be extremely accurate, and he wished to keep his records uniform. He had used other methods from time to time but not the one mentioned by Dr. Savill. If he was constantly changing his methods his results, extending over many years, would lose much of their value. He was extremely interested in the remarkable case mentioned by Dr. Raglan Thomas, though many of his own results had been good beyond all expectation. At first he had believed that in such cases it was necessary to reduce the total nitrogen of the food, but more recently he had got such good results by merely stopping the unnecessary introduction of uric acid, that he believed it to be unnecessary to alter the total nitrogen of the food which might remain at the physiological level without any harm.

*December* 14*th*, 1896.

# A SERIES OF CASES OF APPENDICITIS ASSOCIATED WITH GENERAL PERITONITIS, TOGETHER WITH OTHER CASES OF APPENDICITIS OPERATED ON BY THE AUTHOR WITHIN THE YEAR.

By Mayo Robson, F.R.C.S.

Mr. President, when you were so good as to ask me to give a paper before the Medical Society of London, I thought that although appendicitis had been of late so much written on and discussed, I could not select a subject of greater utility or one on which the medical and surgical branches of the profession hold such different views as to treatment. Moreover, I was led to select the subject from having had comparatively lately a remarkable series of operations for appendicitis with acute general peritonitis, which cases alone I propose to relate in detail, though I hope to find time to mention others on which I have operated during the past year and to make remarks on the subject as a whole.

Case 2. *Appendicitis; accouchement; general peritonitis; operation; recovery.*—On January 3rd, 1896, I received a telegram from Dr. Martin asking me to go to Huddersfield to see a case of acute general peritonitis. On arrival I found the patient, Mrs. ——, aged 32, looking extremely ill, with an enormously distended abdomen from general peritonitis, and a pulse of 160. I obtained the history that she had been confined 36 hours previously, labour having been brought on a month prematurely by a sudden severe pain starting over the cæcum. This cæcal pain had continued from 36 to 48 hours before labour set in, and from the time the pain began up to my seeing her, her condition had so rapidly deteriorated that we all feared her case was hopeless. Dr. Rolph gave the anæsthetic, and with the assistance of Dr. Donald and Dr. Martin I opened the abdomen in the middle line below the umbilicus, letting out a large quantity (probably two pints) of very offensive pus. The primary abscess sac could be felt in the cæcal region, but as the patient was so extremely ill no search was made for the appendix. The abdomen was thoroughly washed out with a hot solution of boracic acid, and free drainage adopted, a glass tube being placed in Douglas's pouch and a rubber tube in the cæcal region.

Recovery was gradual but ultimately complete, and the patient is now well.

Case 3. *Appendicitis; general peritonitis; operation third day; recovery.*—On January 6th, 1896, I was urgently summoned by

Dr. Hobson, of Harrogate, to see a case of peritonitis which had started three days before very suddenly with a violent pain over the appendix, in a girl aged 12 years. The patient looked collapsed, had an extremely rapid pulse, dry tongue, pinched countenance, and somewhat distended abdomen. The case looked hopeless, but operation was advised as giving the only chance.

The abdomen was opened over the appendix, as, though no induration could be felt, a thrill as of free fluid could be elicited. Thin offensive pus was at once reached on opening the peritoneum, but there was almost an entire absence of barrier lymph, and not only the right loin but the pelvic cavity was full of pus, which was also flowing over into the rest of the abdominal cavity. These cavities were well cleansed with wool pads. The perforated and gangrenous appendix was easily found and removed close to the cæcum, a large fæcal concretion about the size of an almond being found in the loin outside the appendix. The abdomen was washed out with hot boracic lotion and a drainage tube was left in the pelvis, one in the right loin, and one was passed towards the spine.

Progress to recovery was gradual but sure, and the patient is now quite well.

Case 4. *Appendicitis; general peritonitis; operation fourth day; recovery.*—On February 7th, 1896, I saw a boy, M. P., aged 15, at Cleckheaton, with Dr. Sykes, on the fourth day of the disease. The onset had been sudden, and the history of appendicitis was well marked, the tender spot being present. There was an entire absence of induration over the cæcum, and but for a distinctly perceptible thrill over the right loin and over the lower abdomen I might have been deceived, as, though the face betokened distress, the pulse was only 100 and there was no marked distension.

On opening the abdomen over the cæcum the pelvis and right loin were full of pus which was ichorous and very offensive; there was no attempt at limitation, and the peritonitis was general. The appendix was gangrenous and perforated, and a fæcal calculus was found outside the appendix.

The appendix was removed. Very free drainage of the abdomen was necessary, and three drainage tubes were inserted—one in the pelvis, one in the right loin, and one right across the abdomen.

Recovery was complete and uninterrupted, and the patient is now well.

Case 14. *Appendicitis; general peritonitis; operation third day; death.*—On July 28th, 1896, I saw, with Mr. F. H. Mayo, a youth, Mr. W., aged 21, on the third day of the disease, which had been sudden in onset. He was much collapsed and had a pulse of 140. There was violent sickness and the abdomen, which was unusually tender, was much distended and very tense. No tumour could be felt, but the pain had started in the cæcum. *Abdominal section* was performed in a small room by candle light. The appendix was gangrenous and perforated. A calculus the size of a large pea was found outside the appendix, and on examination, chemically and otherwise, it was found to be a gall stone, though there had been no previous history of his passing one. Pus was found all over the abdomen in large quantity, and it was not limited in the slightest degree. During the operation the patient was very much collapsed, and in fact we feared he might die on the table, his pulse being barely perceptible, intermittent, and quite 150.

The cavity was washed out as well as was possible under the circumstances, and then drained freely.

The patient never rallied, and died from the combined effect of septic poisoning and shock within 12 hours.

Case 15. *Appendicitis; general peritonitis; operation third day; recovery.*—On August 9th, 1896, Miss B., aged 14, was seen, with Dr. Smith, of Stanningley, on the third day of the attack, with pulse 120, much collapsed, abdomen greatly distended, fluctuation in right flank and loin, sickness and vomiting

*Operation.*—Abdominal section. Appendix gangrenous and perforated, fæcal concretion present, extensive suppuration, with general peritonitis; 5 ounces of offensive pus found in the loin, no adhesions limiting the pus. Appendix removed. Drainage by two tubes, one passing through from abdomen into counter opening in the loin.

Recovery complete and rapid without complication or discomfort.

Case 17. *Appendicitis; general peritonitis; operation second day; recovery.*—Mr. D, aged 19, seen with Dr. Scarth, Leeds, August 30th, 1896.

History of present attack quite sudden, but he had had two slight attacks of catarrhal appendicitis within the year. When seen by me 36 hours after the onset of the attack he was under the effect of opium, and the symptoms were masked, the pulse being only 100, but the absence of tumour, the sudden onset, the hard tense abdomen, and the marked tenderness over McBurney's point made me suspect perforation, with extension of peritonitis. I therefore proposed the morphia being stopped, and that I should see him in 12 hours again, when the rapid pulse, 120, the increased distension, the fluid thrill in the loin and over the cæcum, with the increased tenderness, the absence of tumour, and the persistent vomiting, made me decide on immediate operation.

*Operation.*—Abdominal section, by 3-inch incision over cæcum. Suppurative peritonitis found, with entire absence of adhesive peritonitis around original seat of disease; 30 to 40 ounces of thin, very offensive pus evacuated from iliac fossa and cavity of pelvis, the small intestines being bathed with offensive matter.

The appendix, very large and gangrenous, was found perforated close to the cæcum, the opening being large enough to admit the tip of the little finger. It was removed where it joined the cæcum, and the stump was invaginated and closed by Lembert's sutures. After the pus had been wiped away, the abdomen was freely washed out with hot boracic lotion. Two large drainage tubes were inserted, one to the bottom of the pelvis and the other into the right kidney pouch.

From the evening of the operation the pulse and temperature became and remained normal, and recovery was satisfactory in every respect.

The various pathological classifications of appendicitis are of greater scientific than of clinical importance when the question of operation has to be considered, and I think it will be found that the division of cases into acute and subacute will serve a more useful purpose than speaking of catarrhal, ulcerative, and infective, or of endo, parietal, peri, and para-appendicitis. The

most important points to settle in any given case of appendicitis are, first, ought an operation to be done, and, secondly, if so when?

It may sound somewhat radical, but I speak from conviction, after considerable experience, when I say that I believe the early operation, undertaken as soon as appendicitis is diagnosed, first advocated by Dr. McBurney, would lead to a far greater percentage of recoveries than the method of individualising which we in England still adopt and which we seem likely to continue.

I believe this, because I know that the removal of an appendix before suppuration, perforation, or gangrene has occurred or before firm adhesions have formed, is practically unattended by risk, as shown by the experience of Mr. Treves, of myself, and of many other surgeons, and the operation can be accomplished through a small incision with separation rather than division of muscular fibres, whereas in waiting for resolution we not infrequently land ourselves in serious difficulties and have to operate under unfavourable circumstances, such as are described in some of the following cases.

The following cases have occurred in my practice during the past year, and as they illustrate the points I wish to emphasise I prefer limiting my remarks to them, especially as they are all fresh in my memory. In order to save time, I hand round a tabulated statement which will enable me to refer only to special cases.

While it is convenient to make the clinical division before operation, it is quite easy to divide the cases subsequently into:—

(*a*) Catarrhal, as instanced by Cases 5, 7, 8, 11, and 18, which are good examples of recurrent appendicitis, and

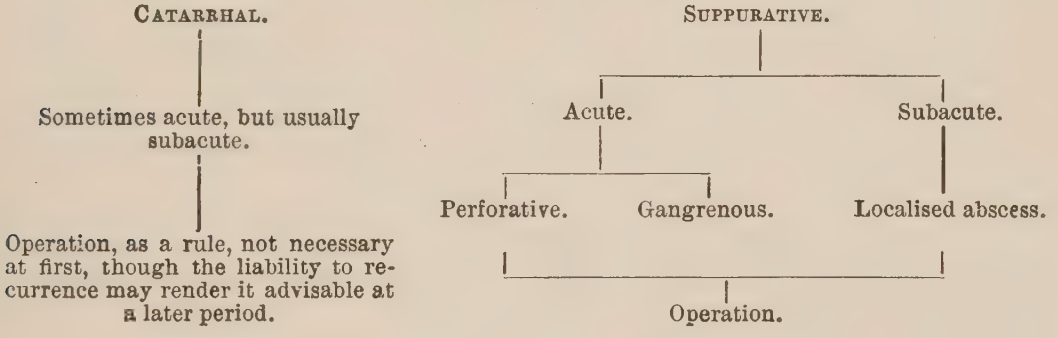
(*b*) Suppurative, either without perforation, as in Cases 2, 9, 10, 12, 16, and 20, or with perforation, as in Cases 1, 3, 4, 13, 14, 15, 17, and 19, or associated with gangrene without perforation as in Case 6.

Catarrhal appendicitis furnishes the greater number of cases of recurrent appendicitis, and this is the variety which may and usually does recover without surgical treatment, though, as shown by Case 17, while the first and second attacks may be catarrhal and end in resolution the next seizure may assume the suppurative

form and produce general peritonitis demanding operative interference, and by Case 20, where the first attack was catarrhal and the subsequent attacks suppurative, requiring operation.

Suppurative appendicitis may run an acute or a subacute course, but whatever form it assumes, whether with or without perforation or with or without gangrene, it demands operation, which, in my opinion, should be advised at the earliest possible moment, *i.e.*, as soon as a probable diagnosis is arrived at. I have never regretted operating, but I know of several calamitous cases where delay at the request of the patient or his family has led to a fatal termination, which might probably have been avoided had operation been more strongly urged.

This simple classification into catarrhal and suppurative, which is closely related to the clinical division of acute and subacute, is the first step to enable us to arrive at a decision with regard to operation. It is simply shown in the appended chart:—




I always look on an acute onset, with a rapid pulse and tenderness over the appendix without the presence of a tumour, as indicating the need for immediate operation. A more gradual commencement with a quiet pulse (not over 100) and the early formation of a tumour are signs that delay may be safe.

If in the course of an appendicitis at any stage, a rigor with rise of pulse and temperature occur, operation should be advised as it indicates septic absorption. The temperature alone is of very little assistance, the pulse being the true guide for treatment. Opium may so disguise the pulse rate, thus leading to serious or even fatal delay, that I feel sure we best consider the welfare of the patient by trying to give relief in other ways until the condition to be dealt with has manifested itself. If opium has been given it will be advisable for the surgeon to reserve his opinion, and if on withholding the sedative for a few hours the

pulse has increased in frequency and anxiety of countenance has declared itself, operation will be required.

Relief or cessation of pain with a marked rise in pulse rate is an indication for immediate operation, as it not infrequently indicates gangrene of the appendix.

Distension of the abdomen with vomiting and rapid pulse are signs that admit of no delay, as they are indicative of extending or of general peritonitis.

In formulating rules like those I have just mentioned, I feel that I owe an apology to my audience for entering into so much detail, but if we uphold the principles of individualising we must try to formulate some rules to guide us as to when we may use and when withhold the knife.

As to the time when operation should be done.—In the subacute or catarrhal forms, the quiescent period, as advised by Mr. Treves, is undoubtedly the safest, and any time after the more acute symptoms have subsided may be selected. Probably from two to four weeks after recovery from an attack will be found the best. Dr. Willie Meyer ('Medical Record,' February 29th, 1896) remarks that "an appendix once inflamed has to be looked upon as a diseased organ which is very apt to give repeated and more serious, even fatal, trouble in the future"; he therefore advocates the removal of the appendix in every case after a first attack, and I think this is sound advice, though in England our practice is less radical.

I suppose we can all point to cases where a patient has had an attack of catarrhal appendicitis ending in complete recovery without recurrence; therefore those who advocate delay have reason on their side. But I do most strongly uphold that, after a second attack, operation should be decidedly urged, as repeated seizures will certainly recur, and, from being catarrhal, may become suppurative. In operating, ought we always to remove the diseased appendix? It will be noticed that in all the cases on which I have operated during the year I removed the diseased organ, with the exception of Cases 2, 9, 16, and 20. In Case 2 the patient was too ill to bear the search; in Case 9 the appendix was not found when the pus was evacuated, and a second attack occurred within a few weeks, when I again operated, but on this occasion on the day of the seizure, before an abscess had formed, and I was thus able to search for and find the offending organ,

which contained muco-pus. In Cases 16 and 20 the appendix could not be discovered without greater separation of adhesions than I thought to be prudent. My own feeling is that, with few exceptions, the operation should be made complete by removing the origin of the trouble.

No question can be raised as to the wisdom of removing it in the recurrent form, as that is the *raison d'être* of the operation; nor can there be much doubt that where there is general peritonitis the perforated or gangrenous appendix should be taken away; the only question arises in cases where suppuration is apparently localised, and where there is a fear of opening the general peritoneal cavity in searching for the offending member.

My method of procedure in such cases is to very thoroughly evacuate and cleanse the abscess cavity as soon as the pus is reached, and then to carefully follow the longitudinal band on the cæcum, if that can be seen, as it inevitably leads to the appendix. This can usually be removed without greatly disturbing adhesions; but even if adhesions be broken down, and the general peritoneal cavity be exposed, no harm will as a rule follow if the parts be isolated by sponges.

If the cæcum is covered by inflamed omentum or adherent intestine, so that the longitudinal band cannot be seen, the finger in the abscess cavity will frequently recognise the hard, rounded appendix, which can then be detached without much disturbance of adhesions; or, as not infrequently happens, the perforated or gangrenous appendix may be found projecting into the abscess cavity, when it can be easily removed. If, as rarely happens, none of these conditions be found, I would on no account advise a prolonged search, as such would undoubtedly increase the risk of the operation.

Besides the manifest advantage of removing the danger of subsequent attacks, the removal of the appendix *secundum artem* takes away the danger of fæcal fistula; and not infrequently the judicious search for the damaged organ leads to the discovery of other collections of pus, to leave which would be highly dangerous and very unsatisfactory.

In operating where there is general infective peritonitis, we must be prepared to lose many patients, even if the operation be undertaken in a fairly early stage; but in the later stages, when distension is well marked, and the pulse is becoming very rapid,

the percentage saved will be very small. I have been fortunate in saving five out of six cases of this kind on which I have operated during the year, and I feel that it is a much larger percentage of recoveries than one might reasonably expect; as, although there ought to be no mortality in operations undertaken in the quiescent period, and a very slight one in acute suppurative cases where the area of suppuration is limited, we can scarcely venture to predict that we shall always be able to save 82 per cent. of cases of appendicitis if accompanied by general suppurative peritonitis. In such cases I believe in very free irrigation with plain boiled water or with weak boracic lotion, and in very free drainage by several large rubber tubes.

The incision I usually employ is one of 2 to 3 inches, slightly curved, and a little to the inner side of the anterior superior spine of the ilium, higher or lower according to the position of the tender spot known as McBurney's point, which is nearly always a true guide to the root of the appendix.

Where I can, I adopt McBurney's method of separating muscular fibres, instead of dividing them; this can always be done so far as the external oblique is concerned, and often in the case of the internal oblique.

In removing the appendix, where I can I ligature the mesentery with catgut, and then make a circular incision through the peritoneal coat, folding this back like a cuff. I then ligature with catgut the muco-muscular portion, and amputate it. After purifying the stump, iodoform is applied, and the peritoneal cuff turned back and ligatured over it.

If the appendix be removed close to the cæcum, as in Case 16, I ligature the stump, if possible, and invaginate it into the cæcum, applying Lembert's sutures over all.

If, as in Case 19, the appendix is too much disorganised to bring to the surface, and it is undesirable to disturb adhesions, I simply apply a catgut ligature around the whole organ, and cut off the part beyond the ligature. In only one of the cases (19) was there any subsequent fæcal discharge from the wound, and that only for a short time, showing that these methods were efficient. In the exceptional case the gangrenous appendix was ligatured *en masse*.

In closing the abdomen, I suture peritoneum to peritoneum and muscle to muscle by catgut, using silkworm gut for the superficial

structures. Union usually occurs by first intention, except where the drainage tube was; and there is very seldom any yielding of the scar or development of hernia.

With regard to the use of drainage tubes, I seldom drain when I operate on the catarrhal form; but in the acute form, where there is a septic cavity, I usually drain freely after purifying the cavity by sponging and applying iodoform to the septic lining of the abscess.

Of the 20 operations, it will be seen by the table that 19 recovered, and the one that succumbed was so poisoned at the time of operation that his recovery was practically impossible, though I thought it my duty to give him what chance of life was possible by doing a laparotomy and washing out his abdomen.

In 10 out of the 20 cases, fæcal concretions were found, and in one case a small gall stone was discovered in the appendix. In no less than nine of these cases there were associated, perforation and gangrene. In Cases 8 and 11 there were concretions present, though the form of appendicitis was catarrhal and recurrent; and these would doubtless, if left long enough, have ended in perforation. In spite of what a distinguished authority has said on the subject of concretions, in these cases I cannot help feeling that the concretions and perforation bear the relation in many cases of cause and effect.

As the cases were of all degrees of intensity, and as they constitute my whole operative experience of the subject for the past year, and are given *seriatim*, without any selection, I trust they may form a basis for a useful discussion.

## Mr. Mayo Robson's Series of Cases of

| No. | Date. | Initials or Sex. | Age. | Description. Acute or Subacute. | Peritonitis, General or Local. | History. |
|---|---|---|---|---|---|---|
| 1 | 5.10.95 | Mr. R. ... | 19 | Acute ... | Localised | Acute symptoms three days; rigor; pulse 120; distension. |
| 2 | 3.1.96 | Mrs. T.... | 27 | Acute ... | General ... | Acute symptons followed by premature labour. Operation 36 hours after confinement; rigors; pulse 160; great distension. |
| 3 | 6.1.96 | Miss W. | 12 | Acute ... | General ... | Acute symptoms three days; rigor; patient almost in extremis; pulse 150. |
| 4 | 7.2.96 | M. P. ... | 15 | Acute ... | General ... | Duration four days; no rigor; pulse 100... |
| 5 | 18.2.96 | S. T. ... | 46 | Subacute ... | Localised | Two years previously had abscess of appendix; recurrence 11 days' duration, with subacute symptoms; suppuration. |
| 6 | 24.3.96 | A. H. ... | 9 | Acute ... | Localised | Acute symptoms two days; rigors and rise of temperature. |
| 7 | 8.4.96 | Mr. B. ... | 32 | Subacute ... | Localised | Subacute, but symptoms well marked; 14 previous attacks. |
| 8 | 22.4.96 | M. R. ... | 23 | Subacute ... | Localised | History of three previous attacks of appendicitis. |
| 9 | 3.6.96 | I. D. ... | 35 | Acute ... | Localised | Attack eight days' duration... ... ... |
| 10 | 3.8.96 | I. D. ... | 35 | Acute ... | Localised | Some weeks after the first operation second severe attack, preceded by rigors. |
| 11 | 15.6.96 | H. T. ... | 17 | Subacute ... | Localised | History of four attacks with subacute symptoms. |
| 12 | 17.6.96 | S. C. ... | 41 | Acute ... | Localised | Acute symptoms 14 days; localised abscess |
| 13 | 24.7.96 | M. D. ... | 36 | Acute ... | Localised | Acute symptoms six days; rigors; pulse 108. |
| 14 | 28.7.96 | Mr. W.... | 21 | Acute ... | General ... | Very acute symptoms for three days; patient collapsed and cold before operation; pulse 140. |
| 15 | 9.8.96 | Miss B.... | 14 | Acute ... | General ... | Acute symptoms three days; patient in extremis, with pulse 130. |
| 16 | 29.8.96 | Mrs. C.... | ... | Acute ... | Localised | Acute symptoms four days; rigors (recurrent attacks). |
| 17 | 30.8.96 | Mr. D. ... | 19 | Acute ... | General ... | Acute symptoms two days, with rigors; pulse 120; abdomen distended; no tumour. |
| 18 | 24.9.96 | E. B. F.... | 31 | Subacute ... | Localised | Three attacks within nine months, with one six years previously. |
| 19 | 24.10.96 | Mrs. C.... | 33 | Acute ... | Localised | Acute symptoms four days; pulse 130; T. 103°; rigors. |
| 20 | 4.12.96 | Mr. H. ... | 24 | Subacute ... | Localised | Fourteen days; T. 103° at time of operation. |

## Appendicitis Operated on during the Past Year.

| Operation. | Result. | With Whom Seen. |
|---|---|---|
| Appendix gangrenous and perforated; fæcal concretion; appendix ligatured and removed; drainage. | R | Dr. Keighley (Batley). |
| Appendix not searched for, several pints of pus evacuated. Free drainage by one glass tube in Douglas's pouch and one soft rubber across the abdomen to the cæcal region. Lavage of abdomen. | R | Dr. Martin (Huddersfield). |
| Appendix gangrenous and perforated, fæcal concretion; pelvis full of pus. Appendix removed; drainage. | R | Dr. Hobson (Harrogate). |
| Appendix found gangrenous and perforated, concretion outside; appendix removed. Abdomen and pelvis containing several pints of offensive pus. Lavage and free drainage, viz., one tube in Douglas's pouch, one across abdomen, one in the right loin. | R | Dr. Sykes (Cleckheaton). |
| Appendix inflamed 3½ inches long, removed; pus evacuated; drainage ... | R | Infirmary. |
| Appendix becoming gangrenous, much enlarged, removed; fæcal concretion present; pus evacuated; drainage. | R | Infirmary. |
| Appendix strictured near base, containing pus; removed; no drainage ... | R | Dr. Macaulay (Halifax). |
| Appendix in matted omentum containing concretion and surrounded by an abscess. Appendix removed, together with adherent omentum. | R | Infirmary. |
| First operation.—No appendix or concretion found; quantity of pus evacuated and cavity drained. | R | Infirmary. |
| Second operation.—Appendix found adherent to iliac vessels; removed; pus evacuated; drainage. | R | Infirmary. |
| Appendix adherent and strictured near middle, concretion beyond stricture; muco-pus removed; no drainage. | R | Infirmary. |
| Appendix found thickened and adherent to cæcum; removed; pus evacuated; drainage. | R | Infirmary. |
| Appendix gangrenous and perforated; concretion found; about a pint of offensive pus evacuated; drainage. Appendix removed; drainage. | R | Dr. Johnstone (Ilkley). |
| Appendix gangrenous and perforated; concretion a gall stone. Abdomen practically filled with pus (several pints); free drainage. | D | Dr. Mayo (Leeds). |
| Appendix gangrenous and perforated, containing concretion; appendix removed; pus all over abdomen and in right loin; free drainage by several rubber tubes, one through counter opening in loin; appendix removed. | R | Dr. Smith (Stanningley). |
| Appendix not found; 5 to 6 ounces offensive pus evacuated; free drainage. | R | Dr. Lee (Dewsbury). |
| Appendix gangrenous and perforated at its base; removed; pus evacuated from pelvis and abdomen; free drainage by two tubes after thorough lavage of abdomen. | R | Dr. Scarth (Leeds). |
| Appendix elongated, constricted at its base and in its cavity pus found; appendix removed and wound cleansed; no drainage. | R | Infirmary. |
| Appendix gangrenous and perforated; iliac fossa containing about 10 ounces of offensive pus. | R | Dr. Hobson Dr. Edgecombe (Harrogate). |
| Abscess opened and drained; appendix not felt; third attack ... ... | R | Dr. Ozanne (Harrogate). |

Mr. Barker asked the author in what way he carried out the very extensive flushing which he had referred to. This, he observed, was a point of the utmost importance at a time when one was discussing the *pros* and *cons* of this procedure. His own opinion was somewhat undecided in respect of this question. Formerly he had strongly advocated flushing, but of late he had been constrained to modify his views ; in fact, he had come to the conclusion that the matter was one calling for further reconsideration. Before coming to any final decision he would like to know what had been the author's experience. In many cases of late he had been satisfied with opening the abdomen, carefully sponging out the pus from every corner he could get into. He was bound to say that he did not think the results thus obtained were such as to shake his belief that in some cases, at all events, careful sponging was more satisfactory than flushing. He also asked the author what was the average length of the incisions through which he had been able to carry out the extensive researches of which he had spoken. He agreed with most of the general observations that had fallen from the author, but he thought the question of the removal of the appendix in all cases was one which could not yet be decided. Every case would have to stand on its merits. He admitted that there were cases in which undoubtedly it ought to be taken away, but there were others in which the attempt to remove it would imperil the patients' chances of survival. The only practical way he could think of in which it could be decided would be to take a long series of cases by the same operator, the first half whereof had all been treated by removal, and in which the others had all been dealt with without removal. He questioned, however, whether they were ever likely to have such sets of cases to go by. He had understood the author to say that if proper care were taken in sponging, it did not matter much whether adhesions were broken down, and that was a statement which he himself was not able to endorse ; indeed he thought he had lost some cases by so doing, having pushed his search a little too far when a more limited exploration would have been followed by recovery. He mentioned that it had been his painful duty to operate on a relative in whom general peritonitis followed the operation for what was at first only a limited abscess. Of late, whenever he had found himself confronted by a local abscess, he had been very careful not to run the risk of inoculating the abdomen with septic matter by disturbing adhesions. In his paper on a particular method of removing the appendix he had not pretended to have brought forward anything original, and when he had suggested turning back a manchette of serous membrane, he was quite prepared to find that others had before him adopted this procedure. He thought it might be of service to operators of the future if he suggested a means of dealing with a rather difficult class of cases, cases in which the appendix had sloughed up, or nearly up, to the cæcum. There could be no question of tying a cuff and fixing it with a Lembert suture, but a simple way was to tie the appendix at its base and then stitch the cæcum lying round the stump to the outer side of the pelvic peritoneum, thus covering it in.

Mr. Macready observed that surgeons would be very glad to operate on these cases early, but as a general rule they had to wait until they were transferred by the physicians.

Mr. Waterhouse called attention to the "fulminating" variety of appendicitis in which, as generally understood, perforative appendicitis was followed by general peritonitis so rapidly that the patient was practically dead before pus had time to form. He had recently been

called upon to operate in a case of that kind, where, within 30 hours of the onset of the symptoms, the patient was in a state of collapse from generalised septic peritonitis. His experience in respect of flushing and invariable removal of the appendix was in accord with that of Mr. Barker. In the last five or six cases of generalised peritonitis in which he had operated, he had given up flushing altogether, carefully sponging over the whole peritoneal cavity and removing as far as possible every particle of pus and every flake of lymph, and the results had been more satisfactory than in the previous cases in which he had resorted to extensive flushing. Admitting that flushing with large quantities of antiseptic solution readily removed a large quantity of pus, he pointed out that in cases of so-called generalised peritonitis it often happened that certain parts of the peritoneal cavity had escaped infection, the region surrounding the spleen, for instance, being frequently free. In these cases flushing presented the disadvantage that the stream of water might carry infection to regions previously unaffected. Moreover, as the fluid used was necessarily very feebly dosed with antiseptic, the momentary contact was insufficient to cause the destruction of the micro-organisms. With regard to the invariable removal of the appendix, he observed that he himself had, he believed, lost a patient by removing the appendix and thus opening up the general peritoneal cavity, giving rise to subsequent general peritonitis. This case, he felt certain, would, if he had not removed the appendix, but had contented himself with evacuating the pus, have remained a simple abscess cavity. In cases of perforative appendicitis, in which the appendix had not been removed, he had searched out the perforation and had inserted a drainage tube into it, after mopping out the interior of the appendix with pure carbolic acid. He then brought the other end of this tube with the remaining drainage tube out of the abdominal incision. This practice was advisable in certain cases.

Mr. Swinford Edwards insisted on the importance of making a counter opening in the loin for drainage, as mentioned by the author, especially in cases where the abscess ran high up along the colon. That applied to cases of perforation of the stomach and intestine where general peritonitis had supervened. It was not always sufficient to bring out the drainage tube through the abdominal wound, and, whenever it was possible to provide a counter opening, he urged that this should be done.

Mr. Mayo Robson, in reply, agreed with Mr. Barker that in certain cases flushing was disadvantageous. He himself could not but feel that at times he had lost patients from shock after flushing. That remark applied particularly to flushing after removing a ruptured ovarian cyst, but in cases like those under discussion, where the pus was very thin, he thought it was an advantage. In all his cases the patients were extremely ill, and he called attention to the fact that in all of them he was careful to wipe out the abscess cavity where the virulent matter was, before resorting to flushing. In cases of perforating ulcer of the stomach, it was not well to flush until they had wiped the peritoneum, much of the effused material not being removable by flushing; but when they had to get rid of thin offensive pus, they could go on with it until the fluid returned perfectly clear. He described his method, which consisted in the use of a glass funnel with a rubber tube, the wound being held open by his assistant so as to offer every facility for the escape of the fluid. When it was necessary to wash out the upper part of the peritoneal cavity, he simply held the edges of the wound together a little, and the

fluid then passed all over the abdomen. As a rule it was better to wash out the lower parts first. As soon as the fluid was clear, he stopped the lavage. He was in favour of selecting the cases for washing out. In the suppurative cases, he certainly thought it was useful after the bulk of the offensive matter had been wiped away. With regard to the length of the incision, he thought everything necessary could be done through an incision of from 3 to 4 inches. He insisted on the importance of McBurney's point in deciding the whereabouts of the appendix, and the proper site for the incision. He thought his remarks about removing the appendix had been misunderstood. He had made a special point in his paper to avoid a prolonged search for the appendix, because this would undoubtedly increase the risks of the operation. He would therefore never advise extensively disturbing adhesions for the purpose of removing the appendix At the same time, if he had carefully cleansed these parts, he did not think that much extra risk would be involved should he accidentally open up the general peritoneal cavity. He said he had listened with interest to the double method of treatment with regard to the perforated appendix: first, the ligature of the appendix at its root, and then anchoring the cæcum to the abdominal wall, but he presumed that this did not exclude drainage at the same time. With regard to the suggestion to place a drainage tube into the perforated appendix, he said the idea was ingenious, but if he could reach the perforation, he thought that, personally, he would be inclined to remove the appendix. He pointed out that flushing effected a great saving of time, seeing that methodical sponging of the peritoneum in all its corners must of necessity be a somewhat tedious proceeding, whereas flushing only took a few minutes. He said, in conclusion, that he did not usually find any difficulty in respect of the physicians handing over the cases early enough, for when the conditions tended to get worse, there was really very little delay in the patients finding their way into the surgeon's hands. The only difficulty was that physicians sometimes wanted the surgeon to operate on cases in which no operation could do any good, as in obstructive jaundice from malignant disease.

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*January* 11*th*, 1897.

## MOTION—*re* LORD LISTER.

The President moved a vote of congratulation to Lord Lister on the occasion of his elevation to the peerage, which he alluded to as an honour not only to science, but to the practice of medicine.

This was seconded by Sir Dyce Duckworth, and carried by acclamation.

# REMARKS ON WANDERING SPLEENS.

By J. Bland Sutton, F.R.C.S.

The epithet "wandering" has been applied to organs unduly mobile, the common examples being wandering kidney and a wandering goître; in none is the term so well deserved as in the case of a very movable spleen. In a well-marked instance this organ is capable of such free excursions that it may be brought into contact with every part of the cœlom (general peritoneal cavity) from the diaphragm to the floor of the pelvis. It is difficult to conceive that a viscus like the spleen, suspended by peritoneum to the under-surface of diaphragm, connected to the great *cul-de-sac* of the stomach by means of the gastro-splenic omentum, and by its blood vessels brought into intimate bondage with the pancreas, could so elongate its attachments as to reach the fundus of the virgin uterus.

It is not my intention to offer any speculations on the manner in which this undue mobility is acquired, but merely to refer to the leading facts which have been ascertained in regard to prodigal spleens, to indicate the evil consequences which arise out of their wanderings, the mischief they set up in certain organs with which they come in contact, the difficulty they occasion in diagnosis, the astonishment which follows their discovery in the operating theatre or the *post-mortem* room, and the disasters wandering spleens may entail upon their owners.

It is interesting to observe the positions assumed by a wandering spleen. Occasionally it will occupy the normal position, and remain for days retired under cover of the left costal arch; then suddenly it slips out, and becomes obvious to the patient in the umbilical or iliac regions; then it will descend into the pelvis, and its presence there is determinable only by deep pressure of the fingers over the hypogastric region, or by vaginal examination. Although gravity exercises some influence in determining the sinking of the spleen into the pelvis, its position in the belly does not always appear to be due to this cause. In one case, especially, I was able to determine on several occasions that when the spleen was very mobile, and the patient turned on to her right side, this viscus sometimes fell into the right iliac fossa; but it would quite

as often move to the left side, as though carried on by the intestines, like a boat on the crest of a billow. I am at a loss as to any suggestion as to the cause of these vagaries, but they are very similar to those characteristic of movable kidney; mobile kidneys, however, never exhibit such extensive excursions as wandering spleens.

In considering the many remarkable changes of position to which abdominal tumours, as well as mobile viscera, are liable, it is well to bear in mind that the statics of vital bodies freely projecting into a vacuum like the cœlom, and subject to many forces apart from mere alteration in the position of the individual, is a subject which has never been adequately investigated. It is, however, important to bear in mind that there is no change which disturbs the abdominal viscera so much and leaves such traces as pregnancy; and it is noteworthy that wandering spleens are almost, but not exclusively, confined to women, and in the majority of cases the individuals have had children. This statement holds good not only for clinical examples, but also for those discovered after death.

## The Effects of Wandering on the Spleen.

(*a*) *Engorgement.*—As the structure of the spleen, even when the organ rests in its normal position, is one eminently favourable to the occurrence of engorgement, it is obviously more liable to over-distension when pendulous at the end of a long stalk formed by the elongated splenic artery and vein and gastro-splenic omentum. The extent to which the spleen may become distended will be gathered from the following observation:—A wandering spleen, when lying in the belly, extended from the floor of the pelvis to a point midway between the umbilicus and the ensiform cartilage. When removed from the body it contracted so rapidly that in 15 minutes its greatest length was 15 cm. (6 inches) and weighed half a kilogramme. It was left for six hours in a vessel of cold water, and when *rigor mortis* was well pronounced the spleen scarcely exceeded its normal size. This remarkable contractility of the spleen I was able to study closely in a girl during a splenectomy. The spleen reached from the diaphragm to the uterus, and when exposed through an incision in the belly wall looked a very formidable object. It was withdrawn carefully, and unwilling

to sacrifice such a large quantity of blood I had the spleen gently supported by an assistant for a few minutes. Exposure to the air acted as a powerful stimulant, and the contraction was so obvious that, whilst we watched, this enormous spleen shrunk one-third of its original bulk. We really witnessed a splen c systole.

(*b*) *Axial Rotation.*—Apart from the facility with which a wandering spleen becomes overcharged with blood, its blood-holding capacity comes out even more markedly when the organ spins on its axis and twists the pedicle; then the thin-walled veins become compressed before the current is arrested in the more resilient artery, with the result that the spleen is so replete with blood that it looks as if only too ready to burst.

(*c*) *Atrophy.*—When a wandering spleen undergoes axial rotation the same severe symptoms arise as are met with in acute rotation of ovarian cysts and strangulated hernia. When the rotation is so acute as to completely arrest the circulation in the spleen, and persists it will lead to permanent occlusion of the splenic artery and vein. Obliteration of the splenic artery involves atrophy of the spleen, a fact demonstrated by Rokitansky in his classical paper dealing with the axial rotation of abdominal tumours and viscera (1859).

## The Effects of a Wandering Spleen on Neighbouring Viscera.

(*a*) *The Pancreas.*—When we consider the intimate relation of the spleen to the tail of the pancreas, it is certainly to be expected that some disturbance of the gland would arise from elongation of the splenic pedicle; in some cases the pancreas remains undisturbed, but in others it has been incorporated in the pedicle. In one case reported by Rokitansky the pancreas was pulled out till it measured 25 cm. (10 inches), and formed part of a twisted pedicle, making three turns round the artery. Richelot removed a spleen which had tumbled into the pelvis and dragged the tail of the pancreas with it; the gland was so incorporated with the pedicle that pancreatic tissue was included in the ligature. I have had a similar experience.

(*b*) *The Stomach, Duodenum, and Gall Bladder.*—The dragging of a wandering spleen upon the stomach leads to uncomfortable gastric effects, such as dilatation of the stomach, accompanied by

fermentation of food and vomiting. Occasionally the tension upon the stomach and duodenum interferes with the common bile duct and leads to frequent recurrent attacks of severe jaundice.

(*c*) *Intestines.*—It can easily be imagined that the long cord-like pedicle of a pendulous spleen would be very liable to interfere with the intestines, and cases are on record in which wandering spleens have been found adherent to small intestine, colon, sigmoid flexure, and the vermiform appendix. Adhesions of this character, apart from their liability to cause intestinal obstruction, are unpleasant because such unions lead to damage of the intestinal wall, which may favour the emigration of bowel contents charged as usual with micro-organisms, and thus initiate the formation of pus with all its evil consequences, and, the most serious of all, septic peritonitis.

(*d*) *The Uterus.*—Perhaps the least suspected damage which a wandering spleen may cause is acute retroflexion and even prolapse of the uterus. All wandering spleens tend to drop into the pelvis; in two patients I have been able to demonstrate that the weight of the spleen has doubled the uterus on itself, and in one woman the retroflexion thus caused has been a source of great inconvenience. Kouwer has published details of a case in which a pelvic spleen caused complete prolapse of the uterus, the vagina, and the bladder. The pressure of an organ like the spleen on the uterus not only mechanically interferes with the uterus but seriously disturbs menstruation.

## Danger to Life.

It will be gathered from what has been stated in the foregoing sections that a wandering spleen may, and occasionally does, jeopardise life. The dangers are:—

(1) Rupture of stomach or duodenum.
(2) Intestinal obstruction.
(3) Abscess of spleen.
(4) Rupture of spleen.

## Diagnosis.

In writings dealing with the diagnosis of abdominal tumours, enlargement of the spleen is always taken into account, but

wandering spleens are not mentioned. As a consequence a misplaced spleen is rarely recognised until the abdomen is opened in the operating theatre or *post-mortem* room.

Wandering spleens have been confounded with many kinds of abdominal tumours, such as ovarian cysts, renal tumours, malignant tumours of the omentum, movable kidneys, and uterine myomata. The tendency of such spleens to seek the pelvis, their shape and firmness, combined with the disturbance their presence in the uterus causes to menstruation, has led them to be mistaken for uterine myomata in many instances. Perhaps the most curious of all is a case reported from Spain, in which cœliotomy was performed for the relief of trouble due to the presence of a tumour in the pelvis. The tumour was successfully removed under the impression that it was a uterine myoma, impacted and adherent to the pelvis and adjacent structures. When fragments of the supposed myoma were submitted to microscopic examination it proved to be a spleen.

Körte reported a case in which a woman was seized with pelvic pain after a lying-in. The physician in charge of the case detected a tumour low in the belly, and as the urine was diminished in quantity, he regarded the tumour as a "wandering kidney." Signs of internal strangulation arose, and Körte saw the case and punctured the tumour, but only blood escaped. The patient died with signs of intestinal obstruction and peritonitis. At the *post-mortem* examination a spleen was found in the pelvis; it had obstructed a loop of intestine.

It is necessary to bear in mind that ovarian and uterine tumours may closely simulate wandering spleens. For instance, a married woman, 35 years of age, was admitted into the Chelsea Hospital for Women complaining of a swelling which she had noticed eight years. The tumour was in shape like a spleen minus the notches. It occupied the right iliac region, but could be transported into every region of the abdomen without causing pain or discomfort. No area of splenic dulness could be made out in the normal situation of the spleen. The pelvic viscera were apparently normal. The blood corpuscles were normal in shape and in their numerical proportions. The tumour was liable to variations of volume. After deliberate consultation operation was decided upon. When the abdomen was opened a dark red mass, with a wrinkled capsule and in shape like a spleen, was exposed, and it was not until I

had passed my hand into the left hypochondrium that I satisfied the onlookers that it was not a spleen. It proved to be a pedunculated uterine myoma; its stalk was no bigger than my index finger, and contained a very large vein. I have little doubt that the variations in volume of the tumour were due to partial tension and torsion of the pedicle. The myoma (weighing $2\frac{1}{2}$ kilogrammes) was removed, and the patient recovered.

Three months later a girl, aged 14 years, was admitted with a very large abdominal tumour, associated with free fluid. She was kept in bed for several days, and as the fluid slowly absorbed the tumour became more defined. It floated on the intestine, and lay obliquely across the left side of the belly, its upper end reaching to the left hypochondrium. Nothing abnormal was made out on pelvic examination. The splenic area was resonant, and the tumour had the shape and presented the notched border so characteristic of the spleen. The blood corpuscles were normal in number and proportion. It was regarded as an enlarged and wandering spleen. An incision was made in the left linea semilunaris, and a multilocular ovarian cyst was found, partially collapsed from rupture of its largest loculus, floating on the bowels. The secondary cysts gave rise to the deceitful sensation of splenic notches. The tumour, which originated in the right ovary, was removed through the incision in the left linea semilunaris. The girl made an uneventful recovery.

## Remarks.

Splenectomy for wandering spleen is not only justifiable but it is a highly successful operation, the rate of recovery being equal to that of ovariotomy in skilled hands. I have succeeded in collecting a score of cases performed within the last 20 years without a death. It has, of course, occurred to many that it would be desirable, if it were possible, to secure the spleen in the left hypochondrium by means similar to those adopted for movable kidney. Pouwer has endeavoured to carry this out in two instances, but his results show clearly that the patients ran much greater risks and had a longer confinement to bed than if he had removed their spleens.

Ridygier has conceived and carried out, apparently with success, an ingenious and simple method which seems full of promise.

The great difference between splenectomy and splenopexy is that in the former case the individual is deprived of an organ, and, although we do not know with any degree of precision what its real use is, we are nevertheless bound to display caution in dealing with it.

So far as my own cases go I have failed to find any evil manifestations. I regard the spleen as a highly developed and specialised lymph gland, and at present there seems to be no reason for hesitating to remove it when "wandering" and troublesome in so far as remote consequences are concerned, than in excising a crowd of enlarged glandulæ concatenatæ.

It is a fact that many, if not all, individuals with a wandering spleen are very thin and often gaunt, and as far as my observations go, they retain this character when spleenless.

Mr. Ballance thanked the author for his valuable contribution epitomising the knowledge at present possessed concerning wandering spleens. He mentioned that two years ago he had been called upon to operate for this condition in the person of an English lady who had lived for several years in Brazil. She was married, but without children, and was 29 years of age. On coming to England she was taken to see Dr. Cullingworth. The history of the case was that every month or six weeks she suffered from extreme pain in the abdomen, with distension and also sickness, in fact, in Brazil her symptoms were attributed to intestinal obstruction, from which she not improbably suffered. She was also conscious of a tumour which moved about very freely within the abdomen. The tumour at that time was in the pelvis, and after a careful examination an operation was performed, but as Dr. Cullingworth found that the tumour was not, as supposed, an appendage of the uterus, the wound was sewn up. The case then came under the speaker's care. He found on examination that the tumour varied considerably in size even in the course of inspection, and from the patient's account it was evidently much larger at times than at others, being sometimes very large, while at others it was not larger than a normal spleen. He could push it down into Douglas's pouch and into the region of the right kidney, in fact, there was no region of the abdomen where the tumour could not be made to go. He decided to remove the organ, but it did occur to him that an organ even as movable as this one was probably of service to the organism, and he had considered the possibility of doing some operation other than removal, such, for instance, as stitching the organ in the normal situation, or elsewhere, or by shortening the pedicle. He found, however, that the pedicle was 12 inches long and $1\frac{1}{2}$ inches in diameter, nearly circular, and containing not one, but several veins. It seemed to him at the time that it would be a much simpler thing, and safer for the patient, to remove the spleen, and very difficult to attempt any other operation, so he removed it in the ordinary way. As far as the operation was concerned the patient did well, but a few days later the temperature went up and the patient became very ill. In ten days she was really very ill indeed, the temperature rising to 101 or 103

every night, with a furred tongue and complete anorexia. She lost flesh rapidly, and this was associated with a great diminution in the number of red and an increase in the number of white corpuscles. He felt much alarmed at her condition, which he was unable to account for in any way. He was, however, familiar with the fact that removal of the spleen in old animals always resulted in the occurrence of a series of symptoms very much like those from which this patient was suffering. She went on for three or four weeks, becoming extremely weak and emaciated. She was fed on toasted spleens and extract of spleen, red bone-marrow, &c., and she ultimately got quite well. Since that time he had published two cases of splenectomy for rupture, both patients recovering. In one case a spleniculus was left, and this patient had no symptoms like those produced by loss of the organ. The other case (a woman) and a man under Mr. Pitt's care also suffered in this way. The symptoms in all these cases were great loss of flesh and weight, profound anæmia, a rise of temperature, increase of the pulse rate fainting attacks, headache and drowsiness, thirst, increase in the secretion of urine, griping pains in the belly and long bones, and, during convalescence, enlargement of all the external lymphatic glands, together with the blood changes already alluded to. The blood was normal again in about 10 weeks. He observed that the spleen might be regarded as simply a lymphatic gland, but it was evidently a very important lymphatic gland, and they should be aware of these symptoms and know how to deal with them before removing a wandering spleen. He said the best paper on the surgery of the spleen was that by Vulpius, published in 1894, and in that paper it was clearly shown that almost all wandering spleens were hypertrophied, and apparently the reason why these symptoms had not previously been noted was that the spleens had suffered functional atrophy, and compensation had gradually taken place for the loss of the spleen before operation. The bone-marrow would take up the functions of the spleen, and so these patients would not suffer from the symptoms which he had described. He commented on the fact that in both man and animals the symptoms were practically the same. In young animals where the red bone-marrow was present in quantity there were practically no symptoms, but in old animals there was an increase of temperature, loss of flesh, &c., in fact, much the same condition as that observed in man. The changes produced experimentally had been practically the same as in these patients. He supposed that the pain in the long bones meant the change of yellow marrow into red, and in a very interesting paper by Emelianoff it was suggested that the bone-marrow took on the functions of the splenic pulp while the lymphatic glands functioned for the Malpighian bodies of the spleen. Not only the external lymphatic glands underwent enlargement, but also the glands in the peritoneum and omentum, and numbers of little miliary bodies appeared in structure not unlike the Malpighian bodies in the spleen pulp.

Mr. Bland Sutton, in reply, thought it was extraordinary that two surgeons in the same city should have had such opposite results in splenectomy. He said he had had four patients, one of them having been under observation for nearly five years, and the others for 18 months, and repeated observations had been made upon their blood by Dr. Wethered, but with the exception of their remaining thin—and they were thin before being operated upon—there had been no change. Two of them had since taken to cycling, and from first to last the

operation had never given him any anxiety. He had been in correspondence with the doctor who attended the lady whose spleen Sir Spencer Wells had removed some years ago, and she was reported to be quite well except that she remained thin. He had accumulated an enormous collection of cases of splenectomy, and here and there there was a case such as related by Mr. Ballance. He observed, in conclusion, that it was a pity Mr. Ballance had given spleen and bone-marrow, especially toasted spleen, for the patients would probably have done just as well without them, and their use tended to encourage a practice which had degenerated into an abuse.

Mr. BALLANCE asked permission to add that he had only given spleen and marrow in the one case, and that the other patients who had not taken any had done equally well. He added that his patients were all now quite well, and were not even thin.

## THE PROGNOSIS OF PNEUMOTHORAX, WITH SOME STATISTICS AS TO MORTALITY AND DURATION, AND AN ACCOUNT OF A SERIES OF CASES OF RECOVERY.

By SAMUEL WEST, M.D. Oxon., F.R.C.P. Lond.

PNEUMOTHORAX is a subject which does not appear to have attracted of recent years as much notice as might have been expected from the importance of the subject. In the Bradshaw Lecture at the Royal College of Physicians of London in 1887 I drew attention to several points of theoretical and clinical interest. The present communication is of a more practical character and deals with the prognosis of the affection.

Prognosis is without doubt the most difficult part of clinical medicine, for it not only necessitates profound knowledge of the natural history of the disease and of the general laws to which it is subject, but it requires also the power of appreciating at their true value the peculiar features of the individual case, and of determining the extent to which the general laws must be modified to suit the particular instance.

I must premise that in this paper I am dealing only with the cases which are ordinarily indicated by the term "pneumothorax" and not with cases in which the air has gained access to the pleura through a large opening in the chest walls produced by operation or injury.

Before approaching the question of prognosis in pneumothorax it is necessary to refer to what is known as to the general cause

of the disease so far as it is indicated by its mortality and duration. Upon this subject my observations are drawn from three sources: (1) A series of 101 cases from the records of the Chest Hospital, Victoria Park, published by me some years ago; (2) a series of 43 cases taken from the registers of St. Bartholomew's Hospital; and (3) a series of 21 cases, which have been under my own personal observation. These last two series have not yet been published.

*Mortality.*—Of the first series of 101 cases 66 died, giving, roughly speaking, a mortality of two out of three; but of these 101 cases in 74 the pneumothorax developed in the hospital, of which 57 died—*i.e.*, 77 per cent.; while of the 27 cases of pneumothorax which were admitted into the hospital with pneumothorax only nine died—*i.e.*, 33 per cent. The difference between the two sets of figures is to be explained by the fact that the mortality from pneumothorax is greatest in the first few days which follow the onset, while the latter group of cases consists entirely of those who had survived this period for varied lengths of time. The rate, therefore, given by the first group probably approaches more nearly to the true mortality of the disease than the other. In the second series of 43 cases 26 died, giving a rate of 60 per cent., and this is also the rate yielded by the third series of 21 cases under my own care. We may conclude, therefore, that the general mortality of pneumothorax ranges somewhere about 70 per cent—*i.e.*, rather more than two cases out of three die. Saussier's figures give a much higher rate—viz., 131 out of 147, or about 90 per cent.

*Duration.*—In the first series of 101 cases the duration is known exactly in 39 and approximately in 37 others. Of the cases in this latter group the pneumothorax occurred in 10 patients during their stay in the hospital, but the patients recovered sufficiently to leave, so that the terminus *ad quem* is not fixed. In the 27 other cases the patients were admitted with it, and in many of these the terminus *a quo*—*i.e.*, the date of onset—was not quite certain. Altogether pneumothorax occurred 74 times in patients while they were in the hospital, and in these cases the duration is known in 31 exactly and very nearly in eight more; while in the remainder all that can be said is that the disease did not last less than a certain time—that is to say, the length of the stay in the hospital.

*Table showing duration in 76 cases—39 known, 37 approximate.*

| Months. | Weeks. | Days. | Duration known (39 cases). | | Approximate duration (37 cases). | | | Total, 76. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Admitted with pneumothorax. | | Developed pneumothorax in hospital and died. | |
| | | | | | Died. | Left with it. | | |
| | | 1 | 10 | | | | | |
| | | 2 | 3 | | | | | |
| | | 3 | — | 18 | | | | |
| | 1 | 4 | 4 | | | | | |
| | | 5 | — | | | | | |
| | | 6 | 1 | 29 | — | — | 4 | |
| 1 | | 7 | | +8 | | | | |
| | 2 | — | | 3 | — | — | 1 | 45=60% |
| | 3 | — | | 2 | — | — | 2 | |
| | 4 | — | | 4 =6 | 2 | — | 1 | |
| | 5 | — | | — | — | — | — | =71%. |
| | 6 | — | | 1 | 5 | 8 | — | |
| 2 | 7 | — | | — | — | — | — | 9=11% |
| | 8 | — | | — | — | — | — | |
| | 9 | — | | 1 | 1 | 1 | 1 | |
| 3 | — | — | | — | 1 | 7 | 1 | |
| 4 | — | — | | 1 | — | — | — | |
| 5 | — | — | | 1 | — | 1 | — | |
| 9 | — | — | | — | — | 1 | — | |

Of the 39 cases in which the duration is known 10 patients died on the first day, two within 20 minutes and 30 minutes respectively of the attack, and the other eight within a few hours. In all, 18 had died by the end of the first week and 21 by the end of the fortnight, to which may be added eight more cases in which the duration cannot be quite determined, though it was certainly less than 14 days, making thus 29 out of 39 cases which were fatal within the fortnight—nearly 75 per cent.; in other words, three out of every four cases. Six more died within the second fortnight, making thus 35 deaths out of 39 cases within the month, or 90 per cent.—a figure which exactly agrees with Saussier's statistics already referred to. I believe these statistics are too high for the results of the present day, as will be seen when I refer to the more recent series of my own personal cases. Of the remaining 10 per cent., or whatever the exact figure may be—*i.e.*, of those patients who did not die within the month—the

duration was considerably longer, many weeks, occasionally many months, and some patients recovered completely. Of the 37 cases in which the duration was uncertain nine were admitted with pneumothorax and died in the hospital, 10 developed pneumothorax in the hospital and left at varying dates after the attack, some of whom were known to have died subsequently at their own homes, while 18 patients were admitted with pneumothorax and left with it. Of this second group, taking all the cases together, 10 died within the first month, eight more within the second, and two more within the third, making 20 in all. Taking the two series together, of 74 cases 45 died within the month, *i.e.*, 60 per cent.; nine more died within the second month, making 71 per cent. Of the remainder the duration may be much longer and some may recover; seven were known to be alive at the end of the third month, one at the end of the fifth, and one at the end of the ninth. Of the 21 cases which were under my own care, 12 only died, giving a mortality of 60 per cent., which is exactly that which the records of St. Bartholomew's Hospital for the last 14 years also yield.

*The Cause of Death.*—The real mortality from pneumothorax is difficult to arrive at, for it often happens that the patient gets over the pneumothorax, possibly even recovers completely from it, and yet dies before long either from the diseases which caused the pneumothorax or from the results to which the pneumothorax indirectly led. The causes of death must be dealt with in three groups: the first, in which death is the direct result of the pneumothorax itself; the second, in which it is the indirect result of it and due to the complications which follow, *e.g.*, empyema; the third, where it is the result of the original disease, *e.g.*, phthisis, to which the pneumothorax itself was due, the pneumothorax being at the most but a more or less serious complication, accelerating possibly the end, though not itself entirely responsible for the result.

1. The great majority of the fatal cases of pneumothorax die, as already stated, within the first few days of the disease; nearly one-half, 46 per cent., die within the first week. Of the cases that were fatal during the first fortnight, no less than one-third died on the first day, two within 20 and 30 minutes respectively of the onset of the disease, and the majority of the others within a few hours.

Where death is the direct result of pneumothorax the cause

of death is suffocation. This is due in most cases to the sudden embarrassment of the respiration and circulation consequent upon the disease, and it is not so much the amount of change as the suddenness of it that is the cause of the grave symptoms, so that if time be given for the circulation and respiration to adjust itself the urgency of the symptoms may pass off, and thus it may be stated that every hour the patient keeps alive the better the chances are of his passing safely through the initial dangers. Another and different cause of suffocation, mechanical rather than physiological, lies in the sudden discharge of the contents of cavities into the air-tubes which get sucked into the remaining lung and thus choke the patient. I have seen this occur more than once. Lastly, there is a class of case in which death may be called sudden or immediate, and may be referred to shock. This is very rare, and I have never seen an instance of it myself. Lebert describes a case in a young medical man of the age of 28 years. Of the two cases in which the patient died within 20 minutes and 30 minutes respectively of the onset of the disease the cause of death in each was acute suffocation and not shock. The initial dangers can, no doubt, be greatly diminished by the early recognition of the disease and its appropriate treatment, and it is probable that the diminished mortality of pneumothorax in recent years is due to improved diagnosis and treatment.

2. Where death follows at a later period it is often the result of the effusion consequent on the pneumothorax. The effusions are, roughly speaking, serous in one-third of the cases, sero-purulent in another third, and purulent in the remaining third; where the effusion is purulent, sooner or later the side has to be opened, either because the empyema points or discharges itself or because it is deliberately incised. The condition then becomes one of an open empyema, and under unusually unfavourable conditions, for, owing to the prevailing prejudice against early incision in pneumothorax, the lung has been probably bound down and cannot consequently expand, and, secondly, because of the complication of the effusion with more or less extensive tuberculous disease of the lung. Any way, the patients die usually from asthenia, the result partly of the prolonged discharge and partly of the phthisis.

3. In the third group of cases it is not from pneumothorax that the patient dies, but from the original disease which produced the

pneumothorax. This is usually phthisis. In many of these cases the pneumothorax is nothing more than a more or less grave complication, which may accelerate the end, though it is not of itself the cause of death. In other cases, though the patient is dying actually from phthisis, the pneumothorax which has been produced may get well completely.

*Prognosis.*—In dealing with prognosis we must presume that we have a case of complete and not of partial pneumothorax to deal with, for localised pneumothorax is comparatively an unimportant affection. Also, that when pneumothorax results from the discharge of an empyema through the lung or externally through the chest walls the prognosis is that of empyema and not of pneumothorax, and therefore relatively more favourable. The three considerations usually embraced by the common term "prognosis" require, in a case of pneumothorax, to be separately dealt with. They are, first, the immediate risk to life; secondly, the possible duration of life; and, thirdly, the chance of ultimate recovery. Many of these points have been already incidentally referred to in treating of the mortality and duration of the disease.

1. *As Regards the Immediate Risk to Life.*—This is always great, and greatest during the early hours and days of the disease, as has been already shown, so that, speaking generally, other things being equal, the chances of life increase in proportion to the period which elapses from the onset; but in any given case the actual prognosis at the time must be determined by many other considerations, of which the following are the most important:—(*a*) The urgency of the symptoms; (*b*) the effect produced upon the opposite lung and the amount of previous disease in it; (*c*) the effect upon the heart; (*d*) the general strength of the patient; and (*e*) the nature of the cause, *e.g.*, injury, phthisis, gangrene of the lung, &c.

(*a*) The urgency of the symptoms.—This is measured practically by the amount of dyspnœa and cyanosis, which is often so extreme that unless relief can be given the patient must die. The greater the relief given by paracentesis, and the longer the interval between successive paracentesis, the better the immediate prognosis.

(*b*) The condition of the opposite lung.—This lung, being overworked, may not be equal to the strain upon it, and if it gives way the physical signs of congestion (*i.e.*, of bronchitis) will manifest themselves. Thus it is that rhonchus and sibilus become

signs of very bad omen. The amount of previous disease in the lung is important, inasmuch as the lung is rendered thereby less able to meet the extra demands made upon it.

(*c*) The effect upon the heart; for the difficulty of circulation throws extra work upon the right side of the heart, and if this exceeds a certain amount dilatation and its consequences will be the result—a result which will be the more likely to follow if the heart be previously diseased.

(*d*) The general strength of the patient.—This is important in two respects: first, in so far as it affects the muscular power, for this is taxed, on the one hand, in the respiratory muscles, which have so much extra work to do, and, on the other hand, in the heart, which in a weakly patient is all the more likely to give way rapidly; secondly, in so far as it affects the general stamina and powers of endurance of the patient.

(*e*) Lastly, a good deal will turn upon the disease which has led to the pneumothorax. In the vast majority of cases this is phthisis, and this class of case may be taken to represent the average. As giving a prognosis better than the average may be instanced cases of pneumothorax following simple injury, such as a stab or a fractured rib, and as giving a still worse prognosis, cases of gangrene of the lung, for these are almost invariably fatal.

2. *As Regards the Duration of Life.*—If the urgent initial symptoms have passed off the prognosis will depend upon the general strength of the patient and upon the nature of the disease with which the pneumothorax is associated, but principally upon the complications to which the pneumothorax may lead, *i.e.*, upon the occurrence of effusion and its character.

3. *As Regards Recovery.*—Speaking generally, the number of recoveries in pneumothorax is small. Most statistics give a more or less complete recovery in not more than 10 per cent. The figures derived from the St. Bartholomew's records yield over 25 per cent., and my own cases are even more favourable still. In my own 20 cases five recovered completely and remained well for long periods; in three the recovery from pneumothorax was complete, but the patient died subsequently from phthisis, and in three others recovery was incomplete. Besides these I have seen one other case in consultation in which recovery was complete, and the patient has remained well for many years. The most favourable cases are those in which no effusion takes place. The

air is then simply absorbed, and often with considerable rapidity. Of this there were four instances, and to these may be added the consultation-case referred to. In another group of cases effusion forms, but it is serous, and recovery then takes place with or without paracentesis, just as it does after ordinary serous effusion. Sometimes the fluid, after being removed by paracentesis, does not reform, but the air remains for some time longer, though it is ultimately absorbed also. In other cases the air is absorbed first, fluid takes its place, the case becomes one of ordinary serous effusion, and recovers in the same way. When the effusion is purulent the prognosis is much more serious, but even some of these cases in time recover. In one of my cases expectoration took place through the lung, and in the end the patient recovered completely. In one other the pus was discharged externally and recovery was imperfect, the patient being left with a discharging sinus for more than 12 months, by which time extensive phthisis had developed from which the patient soon after died.

I now pass to the account of the cases of recovery, which number 11. In five no effusion formed; one was dying from phthisis; one had phthisis, but was living some months after recovery; in the others no definite signs of phthisis developed. In four there was serous or sero-purulent effusion; of these four one was under the tuberculin treatment for phthisis at the time, and had two attacks at a short interval on the same side, but gave no definite signs of phthisis; one had a second attack on the other side six months after recovery from the first; one got completely well; the fourth left with the effusion, having refused operation. Of the two cases with purulent effusion, one recovered with a fistula, but died from phthisis 12 months later. The other expectorated pus for some time, but refused operation.

### *Cases of Recovery.*

#### A.—Without Effusion of Fluid.

Case 1. *Acute phthisis; pneumothorax of the left side developing in the hospital; complete recovery in five weeks; rapid progress in the phthisis, and death subsequently at home from phthisis.*—The patient, a woman aged 19 years, was admitted into the Chest Hospital, Victoria Park, with acute phthisis of the right apex and with some early mischief on the left side also. The disease was probably of about three months' duration. Six weeks after her admission (April 7th) she was seized one morning with pain in the left side and some shortness of breath. The symptoms

were not very urgent, but she was found on examination to have pneumothorax of the left side with considerable displacement of organs. No fluid formed, the air was absorbed, though somewhat slowly, and by May 14th (*i.e.*, five weeks from the onset) the two layers of the pleura were in contact in most places and dry friction was heard, and by the end of the month (*i.e.*, seven weeks from the onset) the condition of the side was the same as before the pneumothorax, the heart's apex was in its normal place, and over it a well-marked pleuro-pericardial friction was present, which persisted for a short time and then also disappeared. The lung re-expanded completely, and nothing was left but a little impairment of percussion at the base behind. There had been no evidence at any time of fluid and succussion had been entirely absent. The temperature was hectic throughout, and was completely unaffected by the occurrence of pneumothorax. On July 10th she left the hospital at her friends' request, *i.e.*, about 12 weeks after the onset of the pneumothorax. The phthisis had all the time been making very rapid progress, and a few weeks later caused the patient's death.

Case 2. *Pneumothorax of the left side, without definite symptoms at the time of onset, without effusion, and complete recovery.*—A man, aged 46 years, was sent up to me by Dr. Parry-Jones. About six weeks before admission he was at work and felt a pain in the left side, which made his breath somewhat short. The dyspnœa was not severe, so that he was able to continue his work, and he remained at work until shortly before I saw him, and with no special discomfort, except that he found his breath a little shorter than usual on effort. For this he consulted Dr. Parry-Jones, who found that the patient had pneumothorax, and sent him up to the hospital to me, although the man did not think himself ill enough to be placed upon the sick list. The whole of the left side was tympanitic to percussion almost to the very margin of the ribs ; the heart was displaced, so that impulse was felt below the right nipple, and the pleura extended $1\frac{1}{2}$ inches to the right of the sternum opposite the third rib. There was no bell sound or succussion ; the breath sounds were absent everywhere except in the interscapular space and a little below this, and here the breathing was exaggerated and some metallic tinkling heard. The movements of the side were quite free. I made the following note at this time : The patient had pneumothorax of the left side ; the amphoric breathing and metallic tinkling were probably produced in the lung, but the opening was itself closed ; the free movements of the side indicated that the lung was not bound down, but expanded readily on inspiration. On September 3rd the patient was quite well, the air was completely absorbed, and the lung re-expanded. The following note was then taken : The percussion was equal on the two sides, the cardiac dulness was in its normal place, the stomach resonance was a little higher than usual, and over a small spot at the base behind there was probably a little pleurisy, for the percussion was slightly impaired, the breath sounds were feeble, and some fine crepitation—probably pleuritic friction —was heard on deep inspiration, *i.e.*, except for this the voice and breath sounds were normal over the whole side. The patient gained 14 lbs. in weight in the hospital, and looked and felt quite well. Once or twice during his stay he had a little hæmoptysis, from which he had suffered occasionally before his attack. Dr. Parry-Jones has been kind enough to send me the following report of him this year, ten years since his attack of pneumothorax : "I find the patient has been at work ever since 1886

and has had no illness. He appears to be now in good health and his chest is in every way normal. I hear, however, from a doctor who saw him a few weeks ago that he had then a very slight attack of pleurisy on the left side, but of this there is no sign now."

Case 3. *A man under treatment for possible phthisis who developed right pneumothorax; complete recovery in six weeks; well 12 months afterwards.*—The patient, a man, aged 24 years, had been under observation for some time suffering, it was supposed, from phthisis, of which, however, there were no definite physical signs. On November 7th he was suddenly seized with severe pain on the right side with much dyspnœa. He was taken to the Royal Hospital for Diseases of the Chest, where Dr. Hensley drew off a large quantity of air next day by means of the aspirator. The patient left that hospital and came under my care four days later. The dyspnœa had disappeared, but the physical signs of pneumothorax were obvious. There was no distension of the side to sight or touch, but there was a good deal of subcutaneous emphysema which had followed the paracentesis. The heart was displaced, so that the apex beat was felt 1 inch outside the left nipple line; there were loud bell sounds and amphoric breathing over the whole side; succussion was absent. On the 15th the physical signs were the same; the bell sounds and amphoric breathing were well marked. On the 20th the physical signs were unaltered, but the apex of the heart had returned to the nipple line. On December 9th the bell sounds had disappeared and did not subsequently return; the amphoric sounds were very weak, and the heart's apex was within the nipple line. On the 20th the right side seemed to be a little flatter and to move somewhat less than the left, but otherwise to be normal; the amphoric breathing had also disappeared and natural breathing was heard over the whole side, back, and front, while the apex of the heart was in its normal place. Thus within six weeks the air had been completely absorbed and the lung had re-expanded. The patient seemed perfectly well and was discharged. He was often seen subsequently, and though troubled from time to time with cough remained in better health than usual, and, indeed, gained flesh. With the exception of a little streaky hæmoptysis five months after his discharge he remained perfectly well, and was known to be in good health more than a year after the occurrence of the pneumothorax.

Case 4. *Pneumothorax of the right side, probably the third attack; no fluid; complete recovery.*—The patient, a man, aged 22 years, was delicate as a boy and was subject to cough, but of recent years had grown stronger, and is now fairly active and strong. He was in his usual health until August, when, whilst walking, he had a sudden attack of pain just above the right clavicle and felt a bubbling sensation in the right side and the breath suddenly became short. After this he noticed that he had a "churchyard cough," but though he was able to keep to his work he was obliged to avoid all violent exercise for about a fortnight, when he got quite well. In the beginning of November—that is to say, four months later—after a game of football in which he was on more than one occasion heavily charged, he became again short of breath. This lasted about a month, but in the end he again got perfectly well. He remained well until just before Christmas (December 23rd), when suddenly, after getting up in the morning, the shortness of breath again appeared, and continued so until his admission into the hospital on January 4th.

He was then found to have pneumothorax of the right side. The chest was fairly well developed, but was a little flat in the upper part; the heart's apex was in the left nipple line, but the pleuritic hyper-resonance extended across the sternum for nearly an inch to the left. On the right side the breathing was amphoric in character, but no bell sound was obtained and no succussion. The liver dulness was at the lower edge of the seventh rib, so that the tympanitic percussion did not extend exactly to the costal arch. The diagnosis made was that the patient had had pneumothorax and that the air had been partly absorbed. He presented no symptoms; the temperature was normal and he seemed well, so that on the 17th he was allowed to get up, and on the 24th was up all day. He could get about without any shortness of breath, and the physical signs were not much altered. On February 5th it was noted that the shape of the chest was symmetrical; movements were free, but there was a little more expansion on the left side than the right on deep inspiration; the liver stood at the sixth rib in the nipple line on the right side; cardiac dulness was normal in place and size; the percussion note was still a little hyper-resonant on the right side, the left was normal; the breath sounds were vesicular and audible down to the base, though a little more distinct at the apex than elsewhere; a little fine crepitation in the mid-axillary line was heard when some pain had been complained of. The patient was seen many times subsequently, and was known to be in excellent health for many months, when he became lost to observation.

Case 5. *Pneumothorax in an apparently healthy girl; no effusion; complete recovery.*— This was a case seen in consultation and is not included in my series. The following account of the case was sent to me by Dr. Waldo, of Clifden, Bristol:—"The patient, a girl, aged 15 years, thought she felt something give way in her right side when dancing. She was first seen by me on August 14th, 1890, when she complained of a sharp pain under the right collar-bone. The heart's apex was half an inch outside the nipple line on the left side, and there were the ordinary signs of pneumothorax, but no succussion. Shortly afterwards you saw her and recommended that she should stay in bed for many weeks. I have a note that on October 6th, 1890, the heart's apex was in its normal position and the respiratory murmuring equally good on each side. The patient had never spat any blood, and there were no signs of tubercle. Her weight was 6 st. 4 lb. I have seen the patient only a few times since, as far as I can recollect, and I have every reason to think that the patient is still in good health."

I recorded one of the cases just described (Case 3) in the 'Transactions of the Clinical Society' of 1884, and I collated a series of 24 cases of this kind,* nearly all in males. The majority of these cases made a rapid recovery; some were well in a few days, others in a few weeks; the longest took 11 weeks. The probable cause was specified in 18; four were due to phthisis certainly and four more probably, three were attributed to emphy-

* *Cf.* also Gaillard, 'Archives Générales de Médecine,' 1888, p. 286, with many of the same cases recorded.

sema, two followed over-exertion in previously strong, healthy persons, and three were traumatic. In four only was mention made of evacuation of air by puncture.

B.—Cases of Recovery after Serous or Sero-purulent Effusion.

Case 6. *Pneumothorax with sero-purulent effusion of three months' duration.*—The patient, a man, aged 22 years, was quite well till three months previously, when he was attacked at night with sudden dyspnœa, so that he fainted. He got gradually worse, had some cough and expectoration, spat a little blood a few times, but only about an ounce at the most; began to sweat at night, and to lose flesh. After a few days he got better, but was never well enough to go out. He remained in the same condition till a pain in the right side set in, which gave him a great deal of distress; so that after a few days' suffering he applied for admission to the hospital, and was taken in, three months after the original attack. He was then found to be suffering from hydro-pneumothorax of the right side; the heart's apex was $1\frac{1}{2}$ inches outside the left nipple line. As he lay in bed, the whole of the front of the right side was resonant down to the margin of the ribs, the liver was displaced in the usual way, and the breath sounds were completely absent. The bell sound was well marked, and so was succussion, which had a metallic character. There was a considerable amount of fluid in the chest, the level rising, on the patient sitting forward, up to the sixth rib in the nipple line. The temperature was slightly raised, reaching 100° or 101° F. every evening, but dropping to 99° at other times of the day. The patient was admitted on May 4th, and by the 22nd the side had become much more distended. The superficial veins on the right side of the thorax were greatly dilated, the course of the blood being from above downwards; so were also the veins of the right arm and the right side of the neck. It was evident that there was considerable intra-pleural pressure, although but little dyspnœa was experienced when the patient was lying still. The displacement of organs was extreme. On the 25th the side was aspirated. Air was allowed to escape as long as it would. The gas was analysed roughly, and appeared to contain about 12 per cent. of carbonic acid. There were removed by the aspirator 41 ounces of a sero-purulent fluid with thick flakes, which was faintly alkaline, had a specific gravity of 1020, and became almost solid on boiling. The whole of the effusion could not be removed, as the patient began to cough and feel faint. The heart's apex returned after the operation nearly 3 inches in linear measurement, and beat nearly under the nipple. The intra-pleural pressure was estimated, and found to be on expiration + $13\frac{1}{4}$ inches of water, on inspiration + $6\frac{7}{8}$ inches of water, so that there was a respiratory oscillation of nearly $6\frac{1}{2}$ inches. On examining the patient four days later, it was found that no succussion could be obtained, and that the bell sound was audible only over the upper part of the lung posteriorly as far down as the spine of the scapula; in the interscapular space some distant amphoric breathing was heard, but elsewhere, as before, no breath or voice sounds were to be detected. In the course of the next few days the fluid evidently was accumulating again; succussion, which was absent, returned; and the veins on the chest became more dilated, much as they had been before the paracentesis. On June 16th a second paracentesis was performed. The pleural pressure

showed 8 inches of water, with a respiratory variation of not more than $1\frac{1}{2}$ inches. No air escaped, but fluid came at once, and 22 ounces of sero-purulent fluid were removed, which, however, contained much less pus than on the previous occasion. On the 22nd the patient felt and looked better, and breathing was greatly relieved. Succussion was absent. The amphoric breathing and bell sound were heard only about the upper part of the right interscapular space. By the 29th the apex of the heart had returned almost to its normal place. The bell sound was heard only in the supraspinous fossa, and in the upper part of the interscapular space. There was no succussion. The breath sounds were hardly different in character from those on the opposite side. Although there was a little dulness on sitting up, it was evident that the fluid had almost entirely disappeared. One month later the following notes were taken :—"The right side is a little contracted, but the movements are free, especially in the lower parts, though not quite so free as on the opposite side. Percussion is somewhat impaired over the whole side, except at the apex back and front, where it is still somewhat hyper-resonant. Over this area the vocal vibrations, vocal resonance, and breath sounds are less than in other parts, and the bell sound is still audible. Elsewhere the voice and breath sounds are fairly normal. The heart's apex is hardly $\frac{1}{2}$ inch outside its normal place. The veins of the right arm, neck, and chest are still somewhat dilated." The conclusion was drawn that the pneumothorax had become limited to a very small area at the apex, and, although the percussion was a little impaired in the lower part of the chest, that the lung had expanded freely and was performing its functions normally. On August 24th recovery seemed to be almost complete, except that the side was a little flattened, and its movements slightly restricted as compared with the other. The voice and breath sounds, though somewhat rougher than on the left side, were otherwise not abnormal. The apex of the heart was in its normal place ; the superficial veins were still a little dilated. The breathing was not in the slightest degree short, even on going up and down stairs. The patient had gained flesh, and in fact seemed to be perfectly well. This case was under observation in the year 1883. I saw the patient this year (1897), 14 years later. The chest appeared to be absolutely healthy, and it was quite impossible to say that there had ever been anything the matter with it.

Case 7. *Case of phthisis under tuberculin treatment; left pneumothorax; serous effusion; paracentesis; recovery ; recurrence three weeks later without effusion ; recovery.*—A man, aged 24 years, had suffered from phthisis for about nine months, and came into the hospital for the purpose of having Koch's treatment applied. He presented well-marked signs of phthisis at the left apex. The disease did not appear to be active, for the temperature was normal on admission, and though the injections of tuberculin were followed by the usual rise, the temperature soon returned to normal and remained so. On May 5th the patient suddenly woke up in the night with a violent pain in the left side of his chest, but it extended, he said, from the left ear down to the margin of the ribs. The patient had a rigor, and the temperature rose to 102° F. ; the dyspnœa was considerable, so that the patient could hardly speak a word. Pneumothorax was found on the left side on May 14th. The following note was taken :—The whole left side was tympanitic to percussion, and the heart displaced far on to the right side. The bell sound was heard. At the base there was dulness, which in the recumbent position rose high into

the axilla. Succussion was easily elicited. It was evident that, besides the pneumothorax, there was a large effusion, and on account of its rapid formation its nature was probably serous. Paracentesis was performed; a quantity of air escaped, and 22 ounces of serum were drawn off. The specific gravity was 1018. The intra-pleural pressure on inspiration was + 4 inches of water, and on expiration + 5 inches, with a respiratory oscillation of 1 inch. The patient stood the operation well, but towards the end of it complained of pain in the precordial region, and on auscultation here pleuro-pericardial friction was heard. The heart returned nearly to its normal position. On June 1st, nearly a fortnight later, the following note was taken :—"The heart's apex is now only about an inch from its normal position; the stomach resonance is distinct; the voice and breath sounds are heard everywhere, even down to the base behind, so that there can be but little fluid left. There is no succussion, and the bell sound is gone. It is evident that the air has completely disappeared, and the fluid nearly." On June 8th the patient, after a violent attack of coughing, was seized again with pain in his left side. His breath became short, and his temperature, which had been for some days normal, rose again to about 102°, and the bell sound returned in the middle part of the chest; that is to say, it was not obtained over the apex in front or at the base behind. On June 25th the following note was taken :—"There is no succussion. From the physical signs it is evident that the impaired percussion behind is due to thickened pleura, and that the irregularity of the area in which the air is contained is due to the irregular adhesion of a partly expanded lung. Gradually the air was absorbed and the lung expanded as before, so that by July 10th the condition was very much that which the patient presented at the time of his admission into the hospital, with the exception that there was a little dulness at the base due to a thickened pleura." On July 24th the patient was discharged from the hospital in much the same condition as he had been on his entry.

Case 8. *Pneumothorax of the left side in an apparently healthy person, without marked symptoms; considerable effusion spontaneously absorbed; complete recovery; six months later pneumothorax of the right side with much dyspnœa, without effusion, also with complete recovery.*—A well-developed, healthy-looking man, aged 21 years, was seized on November 6th with sharp pain between his shoulders. Later in the day he complained of tightness in his chest and pain on breathing. These symptoms continued, so that he felt obliged to remain at home, though not in bed. He did during the succeeding fortnight actually go to work on two days in the week. The pain was worse at night, when he often felt hot and sweated, so that sleep was broken. He had lost flesh and strength rapidly, and, feeling ill, came to the hospital. With the exception of a little rheumatism now and then he had been in perfectly good health all his life, but a few days before the onset of the present illness he had got very wet and worked all day afterwards in his damp clothes. It transpired subsequently that on one occasion, one and a half years ago, the patient had once spat up a little blood, about two teaspoonfuls only. The patient came under observation 18 days after the onset of his illness—viz., on November 23rd. He was then found to have pneumothorax of the left side. The whole front of the side was tympanitic, with well-marked bell sound and succussion. A good deal of fluid was present, the level reaching up to the mid-axilla as the patient lay upon his back. The

vocal vibration, vocal resonance, and breath sounds were almost absent over the whole side, but had a somewhat amphoric character on coughing. The temperature was 102° F. at its maximum, but for the greater part of the day a good deal below that. A needle was inserted and clear serous fluid obtained. As there were no urgent symptoms the patient was not interfered with, was kept in bed quietly, and treated on general lines. By December 6th it was evident that the fluid was being absorbed and that there was great improvement taking place in the side, and on the 12th the following note was taken :—"Outside, but following the line of cardiac dulness, which is in its normal place, is an area of hyper-resonance about 2 inches in width. Elsewhere the percussion is somewhat impaired, but not anywhere dull. The vocal vibrations are heard and felt over the whole side, though not quite as distinctly on the right, but the breath sounds are hardly audible except in the upper part, and there is a little crepitation, probably friction, on deep respiration. There is now no longer any bell sound or succussion. The fluid has been almost entirely re-absorbed, the lung has expanded to a great extent above, though it is possible that in the hyper-resonant area a small amount of air still remains in the pleura. At any rate, over this area the bell sound was obtained a few days ago, though it is absent now." In a few days more even this hyper-resonant area disappeared and became practically normal over the whole side. On January 19th the patient was discharged in all respects well, and except that the left side of the chest moved a little less freely than the right there was nothing to show that the chest had been affected.

About five months later, June 15th, the patient, having in the interval been in good health, was seized in the night suddenly with severe dyspnœa and pain in the right side. He was admitted the next day, and found to have pneumothorax of the right side. The dyspnœa, though urgent, was not extreme. General measures were adopted with relief, and on June 23rd it was obvious that the air was being absorbed, for the heart's apex was 1 inch nearer the sternum. On the 27th the liver had risen so that its upper border was at the sixth rib in the nipple line. On the 30th succussion was obtained, though only with difficulty, but there were no other signs of fluid. On July 4th succussion could no longer be obtained. On August 1st the lung was in contact with the chest walls everywhere, and some friction was heard at the base behind. Recovery was now complete. I have seen the patient lately, *i.e.*, six years from his last attack, and he is perfectly well and the chest shows no signs of abnormality.

Case 9. *Pneumothorax with serous effusion ; paracentesis ; absorption of air ; partial recovery.*—The patient, a man, aged 31 years, was in good health except for a slight cough for six months, till 11 weeks before admission, when on rising one morning he found that he could not draw his breath freely and that he had a little pain in his right side. He tried to go on with his work, but found that he was unable to do so, and had to take to bed, where he remained for a fortnight. After six weeks he was able to go back to work and do light work up to the time of his admission to hospital, though for the last three or four weeks he had found his breathing getting gradually more and more short. On admission he was found to have pneumothorax of the right side with a considerable amount of effusion. Percussion and bell sounds were well marked and there was well marked ægophony at the angle of the scapula. There was

the usual displacement of the heart and liver. The fluid in the recumbent position reached up to the level of the fifth rib, and, on sitting up, as high as the third rib. The temperature rose to 100° or 101° for three or four days after admission and subsequently fell to normal. Three weeks later paracentesis was performed, and 80 ounces of clear serum were removed, with great relief. The intra-pleural pressure was zero. The organs returned nearly to their normal places. The patient was quite comfortable and suffered no distress from the operation. Gradually, however, the fluid re-accumulated, and when the patient decided to leave the hospital a month later, his condition was much the same as on admission. After the patient had been out of the hospital for a month, he returned to show himself. The lines of dulness were much as before, but there was no succussion and the breath sounds were audible all over the resonant upper part. The lower part of the chest contained a good deal of fluid, but no succussion could be elicited. The patient said that he had heard the splashing sound in his right side on leaving the hospital, but that it gradually decreased and had been absent for the last three weeks. The patient passed from observation, and his subsequent career is not known. The air had been all absorbed, and the case had become one of simple pleuritic effusion. However, as he felt well enough to do some work and would not submit to operation, nothing further was to be done.

### C.—Cases of Recovery with Purulent Effusion.

Case 10. *Left pneumothorax; serous effusion; paracentesis; suppuration of puncture; empyema; sinus left; death from phthisis some months later.* —The patient, a man, aged 46 years, had been ailing for 12 months with indefinite symptoms, when he was seized suddenly one night with very severe dyspnœa, with cough and pain in the left side. A fortnight later he was admitted into the hospital. He was suffering from very considerable dyspnœa, was cyanosed, and bathed in sweat; but after being in the hospital for a few hours he rallied. He was found to have pneumothorax of the left side with a large amount of fluid. Ten days after admission he was tapped and 74 ounces of clear, serous fluid were removed. The pressure was 9 inches of water. After the operation subcutaneous emphysema developed. Fourteen days later he was tapped a second time; the pressure then was + $4\frac{1}{2}$ inches on expiration, + 1 inch on inspiration, with a respiratory oscillation of $3\frac{1}{2}$ inches. This time no fluid could be obtained. A short time afterwards the puncture suppurated and ultimately a communication was formed with the pleura, through which a discharge of thin sero-purulent fluid took place. From this time the patient slowly improved, the lung re-expanded, and after four months the patient left the hospital in a fairly good state of health with a discharging sinus in his left side. The lung had expanded fairly well over the whole side, but there were obvious signs of phthisis at the left apex. Some three or four months later he was re-admitted into the hospital because his health had been failing. The condition in the side was much as it was before; the lung had expanded over the greater part of the chest, and the empyema cavity was quite a small one. As the discharge did not seem to be quite free, the opening was somewhat extended with the knife and a drainage-tube put in. The phthisis made rapid strides, and a few months later, about 12 months from the commencement of the pneumothorax, it had involved both sides. Ultimately the patient died from phthisis.

Case 11. *Left pyo-pneumothorax; discharge through the lung; partial recovery.*—The patient, a man, aged 29 years, came under observation with left pyo-pneumothorax. No definite history of its onset could be obtained. The patient had been ailing for three years with a cough, which had been much worse during the last 12 months. He had occasionally spat a little blood and had suffered from night sweats and loss of flesh recently. The signs of pneumothorax were obvious, but succussion was not easy to obtain, and the amount of fluid was not large. The left lung was adherent at the apex, where there were signs of early phthisis. The symptoms were not in any way urgent and did not call for any active treatment. In a fortnight both the air and the fluid were reduced in amount, and the patient had gained 3 pounds in weight. Succussion also was less easy to elicit. The patient then began to spit up pus and this soon increased in amount. With the free expectoration of the pus the condition of the patient improved. Nothing further was done, and in six weeks' time the patient left the hospital greatly improved in general health. The signs of pyo-pneumothorax still persisted, though not quite to the same degree, and some ounces of pus were being expectorated daily. It would, I think, have been well to have operated on this case and laid the side freely open, but this was prevented by the patient's leaving the hospital.

I think we may fairly claim that pneumothorax is sharing in the diminished mortality of diseases of the pleura, and this I attribute to the better comprehension of the true nature and dangers of the disease and to its better treatment, especially during the early days of the attack, when the risk to life is greatest.

Sir Dyce Duckworth said the paper they had just listened to was one of the most complete accounts of this condition given during recent years, so complete indeed in respect of the history and result of the cases that the author had left very little for discussion. The only point that occurred to him was to congratulate him on the remarkable results which he had obtained in the majority of his cases. In one's student days this condition was considered to be one of the most deadly of complaints, whereas it no longer wore so dreadful an aspect. The most serious cases, about which further knowledge was still required, were those which came under the author's third category—cases which were sooner or later associated with empyema, and in which a primary basic tuberculosis led to the pneumothorax. Further knowledge was still required as to the exact line of treatment to be pursued in these cases. Each case, doubtless, must be dealt with on its merits, but they had to consider the advisability of withdrawing the pus from the pleura. He pointed out that pus in the pleura in cases of tuberculosis was held not to be as serious a complication as it might appear to be at first sight, for it had been observed over and over again that when the chest was opened and the empyema drained, the tuberculous process went on much quicker and the patient's last state was worse than the first. That was a point of practice as to which more light was required. The late Sir Andrew Clark used to lay great stress on the undesirability of interfering with an empyema whenever there was a suspicion of phthisis, his experience having shown him that if the effusion were left alone the patients lived longer than when operative

measures were taken. That experience was very generally accepted as a fact by those who had had large experience of these cases. He admitted, however, that it was not universally held, for there were those who believed that in these days of aseptic surgery they might attack anything anywhere. The question here was whether the presence of pus in the pleura in some way inhibited the progress of the tuberculosis in the lung, and not one relating merely to modern aseptic surgery. He remarked, in conclusion, that the paper was one which would be often referred to by writers on both sides of the Atlantic.

Dr. F. de Havilland Hall expressed surprise that the author had not made a separate class of cases of pneumothorax occurring in persons apparently healthy. He referred to the paper which the author had read before the Clinical Society some years ago, which he himself had followed up with a series of similar cases occurring in persons in apparent health. Since then he had seen three or four more, making in all 13 cases of the kind, all of which had ended in recovery in about five or six weeks. The longest took about two months, and the shortest five or six days. The prognosis was therefore much less grave than one might expect. He commented on the fact that only slight discomfort sometimes followed this accident. In one case to which he referred the patient had come to him from his office in the city, complaining of having felt a sharp pain in his chest on the previous Saturday (it being then Monday), yet, on examination, it proved to be a typical example of pneumothorax. He was sent to bed, and in five weeks he had quite recovered. No doubt many of these cases afterwards developed phthisis ; in fact, he had just received a letter from a doctor with respect to a patient whom he had brought to him some months previously in good health with the exception of the pneumothorax. The doctor reported that the pneumothorax had cleared up in three or four weeks, but that soon after signs of phthisis had made their appearance and were actually very pronounced. He suggested that in any future classification a separate class should be made of cases of pneumothorax occurring in the apparently healthy, and in this group the prognosis was much more favourable. He usually insisted on the administration of saline aperients to relieve hepatic congestion and to avoid straining at stool. As to the prognosis in cases of phthisis with pneumothorax, he observed that this was more grave, the patients sooner or later dying of the original disease, and, as mentioned by the author, the gravity of the prognosis was inversely proportional to the duration of the condition ; in other words, that the longer the patient lived the better was the prognosis. He recalled that in that very room Sir Andrew Clark had referred to a case of pyo-pneumothorax which he kept for demonstration during 18 months, but during his absence on a holiday an enthusiastic house physician had taken advantage of the opportunity to drain the pleura, and the patient died of phthisis a few weeks later.

Dr. J. Kingston Fowler concurred in the view that it was generally better to leave alone cases of pneumothorax associated with pulmonary tuberculosis. In such cases recovery may be complete or life may be prolonged for years. He referred to the case of a patient with pyo-pneumothorax, who had been under his observation at the Brompton Hospital for a long period, where he attended chiefly to demonstrate to students the succussion splash. A case of pulmonary tuberculosis had recently come under his care at the Middlesex Hospital with pyo-pneumothorax in which streptococci were present in the effusion. For some time he had refrained from interference, but owing to the tension of

the accumulated fluid it became necessary to operate, and a free opening was made. He thought that it would have been wiser to aspirate, only withdrawing a certain quantity of the fluid. The patient improved for a time, but subsequently died from repeated hæmorrhage, and, *post-mortem*, seven aneurisms were found on the internal mammary artery, one of which had ruptured and had caused death. He suggested that in these cases it might be well, under strict antiseptic precautions, to ascertain the nature of the micro-organisms present. If none are discovered the pleurisy is probably tubercular, and operation is inadvisable. If streptococci are present the prognosis is more grave. The author had expressed doubt with respect to the possibility of pneumothorax arising from the rupture of an emphysematous bulla. The speaker had never made a *post-mortem* examination on such a case, but he mentioned one which he had seen in consultation with Dr. Jolly, of Sydenham—a case of pneumothorax occurring in a person apparently healthy who subsequently died; and Mr. Leopold Hudson, who made the autopsy, reported that he had found a ruptured emphysematous bulla. He believed that this was generally accepted as a possible cause of pneumothorax.

Dr. HUBBARD recalled a remark which the late Sir William Gull had made to him in conversation, to the effect that a man who would perform paracentesis under such circumstances deserved to have the operation performed on himself. The late Dr. Charles Murchison was also very much opposed to the operation, but, of course, this was upwards of 15 years ago.

Mr. G. R. TURNER related a case of extreme interest and rarity which he had come across 18 months ago. It was a case of pneumothorax consequent on rupture of the œsophagus caused by vomiting. The patient, a woman, died 24 hours later, and then it was found that there was left-sided pneumothorax with collapse of the lung, although there had been no evidence of rupture of the lung at the time. He had turned up the literature of the subject, which was necessarily very scanty, but he had found that an American physician 20 years ago had written a paper on the subject, and had analysed his cases, arriving at the conclusion that only two of them were really instances of rupture of the œsophagus. It was interesting to note that rupture of the œsophagus was nearly always associated with pneumothorax. In going through that author's cases with his own clinical experience of this remarkable case he could not avoid the conclusion that more than two cases of this accident had really occurred, and that in nearly every one there had been pneumothorax. The author himself some years ago had drawn attention to the rarity with which ordinary cases of fractured ribs were associated with pneumothorax and empyema. He recalled a case of his own, dating from 1888, of a lad of 17, who was admitted with ordinary hæmoptysis and emphysema from fractured ribs (fourth, fifth, and sixth on the left side). There was no pneumothorax, but the day after the accident, having probably swallowed some of the blood from the lung, he vomited, and this was followed by pneumothorax and collapse of the lung with displacement of the heart. This produced very few symptoms beyond a little collapse at the time, and in about three weeks the air was absorbed, and though there was a little serous effusion this soon passed off, and the boy made a good recovery.

Dr. WEST, in reply, explained that he had not made a special class of pneumothorax in persons apparently healthy, because he had another object in view. Moreover, such a classification might lead them astray,

for his own impression was that such persons might be apparently healthy but were really tuberculous. He had notes of several *post-mortem* examinations to prove this point, and, apart from the clinical history, they did not differ essentially from the others. It would be interesting to discuss the question as to the effect of pus upon the tuberculous lung, or *vice versâ*, but that was a very large question. Although many eminent authorities had been quoted in opposition to the removal of the pus in phthisical cases, he himself was constrained to differ from them. These authorities had, of course, arrived at their opinions from their own experience, and he himself did so from his own—more limited, no doubt, but obtained under much more favourable circumstances. The results of operations on the chest, and especially on the pleura, were now vastly more favourable than in Gull's time. It was, in fact, impossible to accept the statistics of some years ago, matters having so greatly changed for the better. He had thought of bringing forward the treatment of pneumothorax, because it was a subject on which he held views of his own, not in accordance altogether with what was ordinarily taught. He thought the reason the cases did so badly was that they were left alone too long. He asked what would be the probable result of operating on an empyema which had been neglected for several months. With reference to the tradition as to the effect of compression of the lung in checking the progress of tuberculosis he thought this was a very inadequate reason for not interfering, and one indeed which required reconsideration. He could bring evidence to show that it was a mistake against which he wished to protest. He had that evening mentioned some cases in which recovery followed in patients who were undoubtedly tuberculous, the patient in one instance being almost in a dying state. Although in some cases there might be rapid development of tuberculous symptoms after emptying the pleura, they must set against these the other cases in which no such untoward consequence followed. He urged that they ought to consider whether it would not be well to treat cases of pneumothorax which did not get well upon much the same lines as they would an empyema. If they operated earlier he believed these cases would do much better. As to emphysema as a cause of pneumothorax he referred to an excellent paper on the subject by Zahn,* in which, after careful analysis of a large number of records, the author stated that only two cases had been conclusively shown to have resulted from the rupture of an emphysematous bulla. The evidence in favour of this cause was very scanty, and he felt sure that it did not occur in anything like the number of cases that had been supposed. He recalled a case of pyo-pneumothorax, in which the patient died of hæmorrhage from the rupture of a pulmonary aneurism into the pleura.

* 'Virch. Archiv.,' vol. cxxiv, p. 265.

*January 25th*, 1897.

## VESICO-VAGINAL FISTULA: WITH A DESCRIPTION OF A NEW METHOD OF OPERATION.

By E. Stanmore Bishop, F.R.C.S. Eng.

Mr. Stanmore Bishop described the various operations at present known and practised for this condition, with their results, and compared them. He proceeded:—

That operations for the cure of vesico-vaginal fistula are even now sometimes futile will, I believe, be admitted. Even in the latest list of any importance—that of Milton of Cairo—out of 79 operations 41 were useless. Patients were cured after one operation in 21 instances, after two in 10 cases, after three attempts in six cases, whilst one case required four operations to effect a cure. In 12 cases no benefit at all was obtained. The lesion is one which is situated in an awkward position for operative work, and one surface at least of the tissue involved is constantly bathed by a fluid which, when it is no longer confined to its own territory, can become very acrid and damaging. Any union which depends for its success upon primary adhesion, if exposed to the action of this fluid, will be extremely likely to break down and allow percolation through into the track of the sutures, and consequent failure. It is necessary, also, with a view to future comfort, that the re-formed bladder should be lined entirely with mucous membrane, any raw surface left being a constant menace, as forming a nidus for the deposition of calculous material. Nothing can be more discouraging to the patient or more exasperating to the surgeon than to see urine once more escaping per vaginam after a tedious and painstaking effort to close the leak. And yet, if the patient determines to leave matters *in statu quo*, she condemns herself to a most miserable existence, the object alike of pity and disgust to all her friends.

Anything like success in the treatment of vesico-vaginal fistula would appear to be a matter of comparatively recent history. Sir James Simpson, writing in 1859, says:—"With others I used to regard a patient afflicted with vesico-vaginal fistula as a case generally beyond all relief and all hope." Cumin in 1824 says:—

"The hopeless nature of these fistulæ is generally acknowledged, and by many they are at once abandoned as incurable"; and Richerand declared that frequent ablutions and a urinal were the *only* means calculated to diminish the trouble inseparable from this disgusting infirmity. And although, as Milton's list shows, present results are not all that could be wished, there has, curiously, been little alteration in the mode of attack by the surgeon during the past 50 years. If the later writers, as Clifford Allbutt and Playfair, are consulted, it will be found that all the operations mentioned date back many years, and that in all the edges of the fistula are, without exception, the parts attacked. That they shall first of all be made raw is the essential preliminary, whether the paring method of Sims, Bozeman, Simon, and others, the splitting method of Langenbeck, Collis, and Tait, or the elytroplasty of Jobert and Milton be adopted; the various paring methods differed only in the various angles which the pared surface bore to that of the bladder, the importance attached to preliminary preparation of the patient, the use or non-use of clamps to hold the ends of the stitches or to regulate the position of the flaps, the material of which these stitches were composed, and the position of the patient during operation. The splitting method was the same, whether practised by Langenbeck, Collis, or Tait, and consisted in the splitting from the edge outwards of the tissue between bladder and vagina, so as to obtain a large raw surface at this point. Elytroplasty supplied flaps from various parts of the surrounding tissue, but to fix them in place it was first of all necessary to pare the edges of the existing opening and to fit and suture the raw edge of the flap to these.

The only operation which did not interfere with the integrity of the fistulous edge was the method of desperation, that of kolpocleisis, which transformed the upper part of the vagina into a portion of the urinary reservoir, preventing any escape of the menstrual fluid except through the bladder, and might have been expected effectually to prevent further pregnancy. A case is, however, on record in which this unexpected occurrence actually happened, coition having probably taken place through the dilated urethra. It may be accepted, then, that except in those cases in which any return to the *status quo ante* is given up as hopeless, the one subdominant idea in the minds of all surgeons who have attacked these cases has been the absolute necessity of a raw

surface at the edge of the fistula as the essential preliminary. But is this so essential? Could we not by any means transform this obstacle, on the removal of which surgeons have expended so much time and ingenuity, into our greatest help towards success?

In describing what I think is a novel method I wish to be understood as referring simply to vesico-vaginal fistula, and not to vesico-uterine fistula, although it is suitable for those in the anterior fornix as well as for those lower down in the anterior wall; practically but little is lost by this, since Neugebauer estimated the cases of fistula involving the cervix as only forming 8 per cent. of the whole number, and Hermann and others have pointed out that in the most frequent class, that produced by prolonged pressure of the child's head upon the maternal tissues, the head rarely becomes impacted until after the cervix has dilated and retracted. So far as other causes, such as removal of calculus through the vagina, pressure of impacted pessary, traumatic injury to prolapsed and distended cystocele, as in a case of Kynoch's, go, these will all act on the vaginal wall alone.

During the last two years my attention has been directed to the subject of fistula generally, and especially to the often unsatisfactory result of the usual operation for fistula in ano. It occurred to me that, if it were practicable, good results might be expected from separating the fistulous tube as a whole from the tissues around up to, but not through, its connection with the rectal wall. Sufficient of this tube should then be removed to leave a projection which could be inverted like a glove finger by means of threads attached to its distal periphery and passed through the fistula into the dilated rectum; by pulling upon these the fistulous tube might be inverted into the rectum and fixed by tying a ligature around it just above the level of the bowel wall. What had been its raw outer surface would now be its inner, and might be expected to unite with rapidity, whilst the raw surfaces left outside might be immediately united by sutures. The prolapsed inverted tube might then be partly cut away inside the rectum and the ligature left to cut through the remainder, which would not be likely to happen before the outer structures were solidly united. So far I have not been successful, partly because of the action of the sphincter, but mainly because the fistulous track is very seldom a single tube, but usually

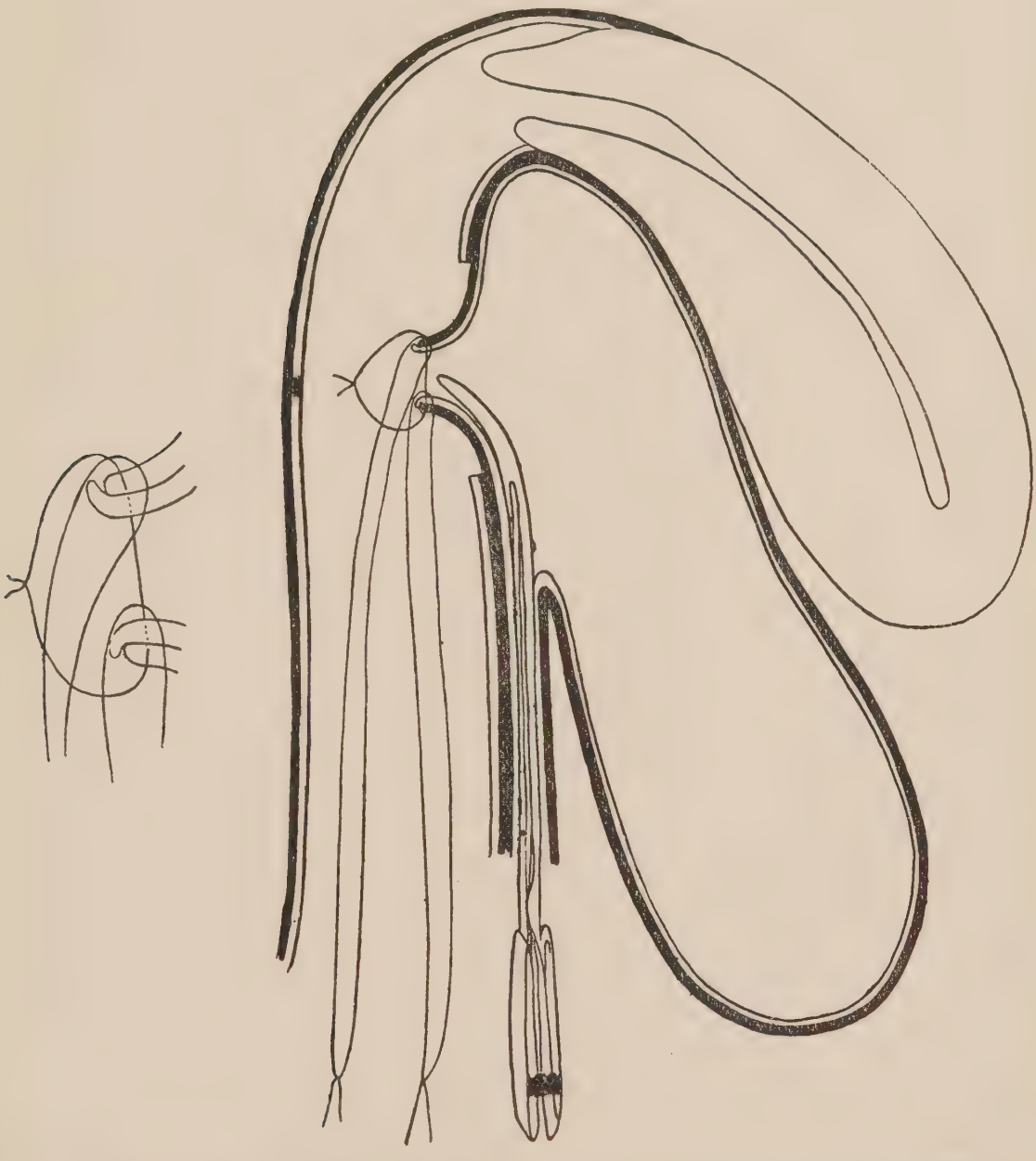
burrows in various directions. But neither of these objections hold good with reference to vesico-vaginal fistula. Here we have a short straight track, and if there are muscular movements in the tissues around they are more under control, and will be of importance only if there is coincident tension. The tube, however, as it exists, at first sight would be far too small to have any appreciable effect in stopping the gap; but if, instead of looking upon the edge of the fistula as the limit of our available tissue, we regard it simply as a hinge upon which a tube of mucous membrane taken from the vagina and spreading outwards may be made to turn, we have at once at our disposal as much as may be necessary to close any but the most extensive gaps. Both bladder and vagina are lined by the same kind of tissue, mucous membrane, and it is the continuation of this over the edges of the rent which has been heretofore the greatest trouble. Supposing exception to be taken to this, and the edge to be looked upon as scar tissue pure and simple, still it is the same tissue as that which it is intended to form by any of the other operations, with the cardinal advantage that it is old and tough, and has passed beyond the dangerous stage in which absorption of deleterious matters is possible.

It is clear that it is the re-formation of the *bladder* which is the essential point. The union of any raw surfaces in the vagina, although important, is of but secondary importance except so far as it may support or strengthen the re-formed bladder wall. If, then, we utilise the vaginal mucous membrane, not as Jobert or Milton, by displacing it as a flap with two raw edges, which require suturing to the equally raw edges of the prepared fistula, with a granulating surface exposed to the action of urine, but with the mucous surface turned towards the bladder cavity, where alone that kind of surface is of primary importance, and with no break in the edges at all, but making a perfectly continuous surface up to a narrow point of union, we shall have gone far towards solving the problem, and the loss of material in the vagina will be of very little consequence compared with the advantage obtained.

Acting upon these ideas I suggest, and have carried out with immediate success, the following operation. I pass over, as understood, the extremely necessary preliminary preparation of the patient. The accompanying diagrams will make clear the

steps of the operation and the idea of it almost without description. In Fig. 1 it will be seen that a circular incision has been made around the fistula, passing through the mucous membrane

FIG. 1.

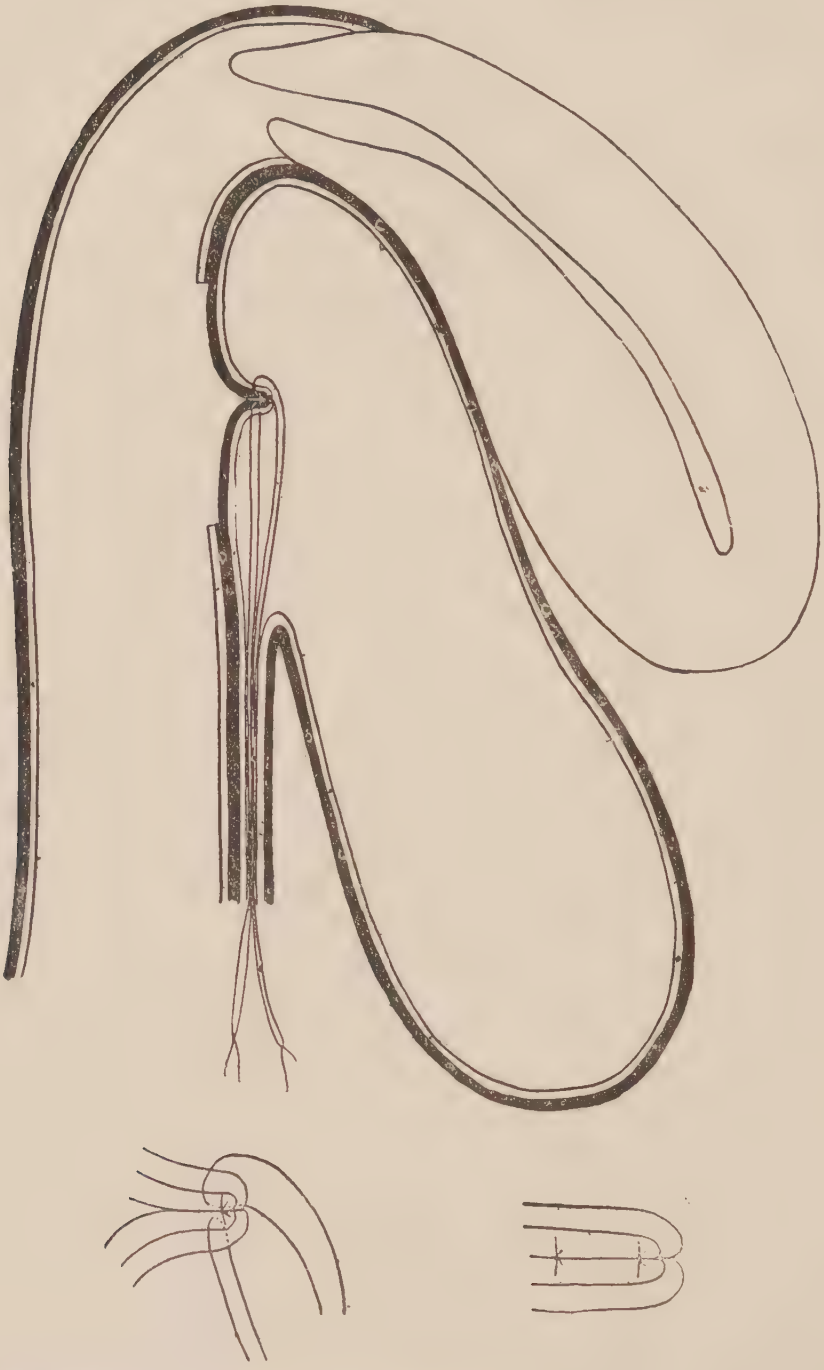


The flap has been separated and turned into the vagina; two guiding threads are shown in position and the first uniting thread, which passes only around through the connective tissue and muscular coat avoiding the mucosa. A pair of bent forceps is passed through the urethra, its point entering the vulva through the fistula. The guiding threads will be turned up into the vagina and their knots placed between the jaws of the forceps.

and part of the subjacent tissue, so that a continuous flap of sufficient thickness can be raised and separated up near to, but not through, the angle at the fistulous edge; the width of this flap

must be judged by the surgeon in each particular case. It must, however, be wide enough, when brought together in the way to be

FIG. 2.



In Fig. 2 the guiding threads have been drawn through the urethra, pulling the circular flap or frill into the bladder. The first uniting thread has been drawn tight and knotted, closing the upper extremity of the frill. This is shown also in enlarged detail. The two uniting threads are shown tied, and the frill thus closed above and below.

described, not merely easily to close the opening, but to project for about a fourth to third of an inch into the bladder cavity at

the centre. When so separated it lies like a truncated glove finger attached solely at the edge and continuous with the mucous wall of the bladder. To four equi-distant points in this frill four long double threads are attached, but not knotted, so that they will easily pull out. Each pair is knotted at their ends outside the vagina. Of course, in a section such as shown only two of these double threads can be indicated. When this is done a curved pair of forceps is passed through the urethra until its beak appears in the centre of the frill, the four pairs of threads are brought together, and their knotted ends placed within the grip of the forceps. As this is withdrawn, closed, it will carry the threads through the fistula, through the bladder, and out through the urethra. Gentle traction upon these (*see* Fig. 2) will invert the circular flap into the bladder in such a way that mucous membrane will face the bladder, whilst the raw connective tissue surface will face itself and come easily together at the level of the bladder-wall, whilst the innermost edges project as a tube into the bladder cavity; the advantage of this will be shown directly. Whilst traction upon these threads is very gently but firmly maintained, and before the frill is inverted, a fine silk suture is carried round it just above its extremity, the suture passes through the connective tissue, but carefully avoids the mucous membrane (Fig. 3, enlarged detail). It lies like a purse-string, and it is tightened up just after the inversion takes place. It draws together the raw surfaces of what before inversion was the outer, but is now the inner surface of the frill, and closes the upper extremity of the tuft. When knotted, the ends of this suture are cut off short, and the whole suture is buried by the further inversion produced by a continuance of the traction upon the guiding threads. As soon as this inversion has been carried to such a point that the surfaces of the flaps lie easily in apposition at the level of the bladder-wall, another circular suture is applied in the same way and knotted, the ends being cut off. In small fistulæ only one of these sutures may be required; that should always be the one at the level of the bladder-wall. The guiding threads are now divided and drawn out through the urethra, leaving the base of the bladder re-formed (*see* Fig. 3). As is well known, divided mucous membrane tends to curve over its raw edge. When, therefore, the first suture is tightened the upper surface of the tuft will present nothing but mucous mem-

brane. Fig. 4 shows the appearance of the fistula from the vagina at this stage. The raw surfaces in the vagina, if sufficiently small to be drawn together without tension, are now united by silkworm gut sutures, the ends of which are left long to permit of easy removal. If, however, any tension is likely to be produced, it is

FIG. 3.

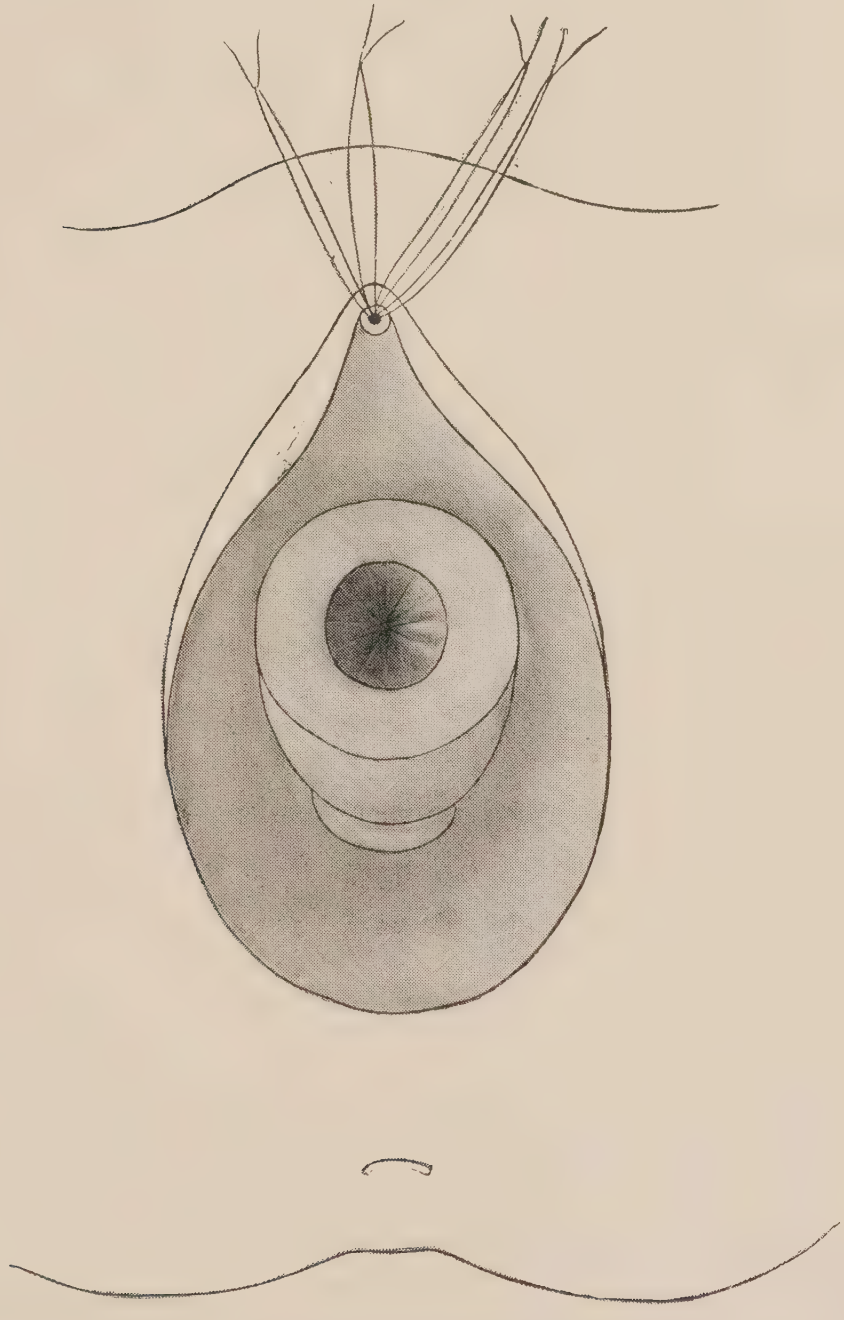
The guiding threads have been divided and withdrawn, leaving the base of the bladder re-formed with no threads exposed to the action of the urine.

better, I think, to apply at once a Thiersch graft taken from some non-hairy portion of skin. This is covered by oiled silk or gutta-percha tissue, and carefully pressed into position. I find careful packing of the vagina with iodoform gauze better than sutures to fix this in position. The patient is made to lie upon her face for

10 days, and the catheter is used every two hours the first three or four days.

The advantages I conceive to be obtained by this method are :— 1. There is no tension upon the uniting surfaces. 2. Mucous

FIG. 4.



Shows the appearance of the re-formed bladder from the vagina. The guiding threads are shown issuing from the meatus.

membrane is opposed to the action of urine—that is to say, the contents of the bladder find themselves in contact with the kind of

tissue to which they are normally suited and accustomed. 3. The cubic capacity of the bladder is not greatly decreased, as is the case after most of the other operations, but is left normal; therefore, the resulting cure is not discounted by persistent frequency of micturition in after life. 4. The uniting sutures are separated from the contents of the bladder by the entire thickness of the mucous membrane. 5. The uniting surfaces are also thus protected; with the patient on her face, if any urine is projected against the tuft it will drip from its outer layer, which is mucous membrane. 6. Should the ureter be exposed at the edge of the fistula, or should its orifice, which happens in most cases, be near it, it will not, as in the old operation, discharge right on to the line of union, but into a gutter formed of mucous membrane, which cannot be damaged by such discharge, and it will also be noted that it is impossible for the ureteral canal to be compressed by a wrongly-placed stitch, fixed in the middle of the scar, or left outside the re-formed bladder—it must necessarily be turned in by the flap thus formed and left in a safe position. 7. In old cases—where, especially, freedom from muscular traction is of most importance—we are provided with a natural replica of Simpson's splint in the tough edge of the fistula, now surrounding the uniting tissues, all the more effective because it is situated in the tissues themselves. This is another instance of the way in which the altered conditions produced by the operation transform the previous obstacles to success into distinct advantages.

Since this paper was written my attention has been called to one by Professor Ferguson, of Manitoba, in the 'American Journal of Obstetrics,' and it is evident that the principle of reversal of mucous membrane from the vagina, which I thought had been original, has been anticipated by him. His operation, however, is otherwise quite different from the one I have described, and does not, I submit, appear calculated to gain all the advantages which are possible. Professor Ferguson separates the mucous membrane of the vagina in much the same way as I have shown, but he makes his flaps only large enough to meet one another easily on a level with the floor of the bladder. They are united in that position by a continuous suture, avoiding the mucous membrane so as slightly to invert the line of union. There is no attempt to pull them inwards into the bladder or to agglutinate them together into a tuft. In all cases the vaginal wound is directly united by

interrupted sutures. It appears to me that, first, the resulting line of union will be practically on the same plane as that of the bladder wall, therefore the amount of uniting surface will be much less, consequently the risk of yielding, both immediate and secondary, will be much greater. And most of all, the discharge of urine from the ureters will play directly upon the uniting edges and may very easily contaminate the sutures. As Simpson said in criticising the operations of his day: "There is the danger of infiltration of urine between the raw lips of the wound on the vesical side, provided the internal surfaces of the lips are not entirely closed, which they can scarcely in all cases be expected to be, by the sutures employed." Perhaps the difference between the two operations will be even more clearly apparent if I refer to a kindred condition, differing mainly in position. In supra-pubic cystotomy, when for some reason the bladder has not been immediately closed, a time will come when the opening is no longer required and closure is desired. Closure will here sometimes occur from simple cicatrisation, but now and then it does not. If the bladder-wall be separated from the abdominal, the edges of the opening in the former pared and simply brought together by sutures, one often fails to get primary union, and leakage again occurs; but if the circumference of the opening be drawn in by threads which are carried through the urethra, and the outer surface drawn together by a purse-string suture, the result will be found to be perfect. At least, I have had that double experience.

It would, of course, be presumption to suggest that this method will meet the requirements of every possible case. He is the best surgeon who, with full knowledge, chooses the method best fitted for the individual case which engages his attention, but the more methods he has at his disposal the better will he be equipped and the more likely are his efforts to be crowned with success. The following cases show the result so far obtained. It will be noted that in all there was never the slightest leakage from the time of operation.

Case 1.—A medium-sized woman, aged 31 years, was admitted to hospital on September 22nd, 1896. She had had two children. In the case of the first—who was at this time 10 years old—labour was easy, and there were no after-effects. The second was a six months dead child. Labour was tedious, and was terminated by instruments. The patient

had no difficulty with the urine directly after her confinement, but about a fortnight after she first noticed urine trickling from her vagina; this had become much worse lately. She was in bed for three weeks after confinement with, she says, rheumatic fever. In front of the cervix and about half an inch from the vaginal reflection was an opening which admitted barely two fingers. The opening was smooth and the edge thin. The vagina was slightly excoriated, but there were no deposits. The urine was of specific gravity 1015, acid, and with a very faint trace of albumin. After careful douching, &c., the vagina appeared to be healthy. On October 6th the operation was performed with one purse-string suture. The vaginal wall was united by interrupted silkworm gut sutures. The patient was placed on her face. A catheter was inserted and kept *in situ*. The vagina was irrigated daily with boracic solution. There was no leakage after the operation. On the 17th the vaginal sutures were removed, and the wound healed. The patient could pass urine herself. On the 29th she was discharged, when she could hold urine six hours easily.

Case 2.—The patient was a tall, masculine-looking woman, aged 28 years, with a flat pelvis. She had had one confinement, which lasted two days and was terminated by craniotomy, which occurred one year previously, when she was five weeks in bed. She had noticed a leakage before getting up. On November 3rd, 1896, the opening admitted two fingers easily; the vagina was tender, somewhat raw, and encrusted in small patches. The urine was slightly alkaline and of specific gravity 1016. By the 20th careful nursing and the use of salol and mineral acids with local treatment produced a fairly healthy vagina, with acid urine, and the operation was performed with two purse-string sutures. A graft was taken from the thigh below the trochanter. The vagina was packed with iodoform gauze. The patient was placed on her face, and the catheter was passed every two hours. There was no leakage of urine. On the 23rd some gauze was removed and the vagina was repacked. On the 26th there had been no leakage, and all the gauze was removed. Almost all the graft had united, except at one side. This was sloughing and nearly separated, and was cut away, leaving a raw space measuring one inch, which was, however, cicatrising. Douching was performed daily with boracic solution, which was followed by insufflation of dermatol. On the 30th there was still no leakage. The patient had passed urine herself. She was not allowed to hold it for more than four hours, but she could do so. She was placed on her back. The vaginal wall had nearly healed. On December 10th the patient was allowed to go home. There had been no leakage. She could hold urine for six hours. The vagina was perfectly healed and felt supple. The grafted patch felt somewhat thinner and smoother than the remainder, but there was no bulging.

Case 3.—A medium-sized woman, aged 40 years, married at the age of 35 years, had had one child seven months previously to coming under my notice. The labour was tedious, but no instruments were used. A leakage was found on the fifth day. Convalescence was slow. There was no fever. The patient had undergone one operation by another surgeon, but the leakage returned; she was not sure how soon after, but thought that there was some during the first week. On January 2nd, 1897, there was an opening of the size of half-a-crown in the anterior

wall near the centre, the edges of which were scarred. The patient was very cleanly, and the vagina was only slightly sore. The urine was acid, of specific gravity 1020, and there was no albumin or sugar. On the 5th the operation was performed with two purse-string sutures. The vaginal edges were approximated with silkworm gut, two lateral incisions being made to relieve tension. She was placed on her face. Daily douching was performed after the first four days, during which the vagina was lightly packed with iodoform gauze. The catheter was used every two hours for two days, after which she passed urine naturally, but was not allowed to hold it for more than three hours at a time. On the 20th the vagina had healed. The suture was removed on the 13th, and the patient has had no leakage since the operation.

The PRESIDENT asked whether the author was at all disposed to think that the presence of an elevated scar inside the bladder might ultimately prove of danger in respect to the formation of vesical stone, a question which occurred to him in view of the fact that he had seen this happen after suprapubic cystotomy. He referred to two cases in which he had opened the bladder from the perineum in consequence of vesical symptoms, where he had found that phosphatic stone had actually formed upon the line of the original suprapubic incision. He suggested that they ought to aim at procuring a very flat scar in operations for vesico-vaginal fistula, one, in fact, which would not be likely to act as a nucleus for phosphatic stone. He pointed out that a hard cicatricial scar was just as capable of acting as a foreign body in relation to the formation of phosphatic stone as a piece of bougie, for instance. He added that if the diagrams really represented what was done, the risk was one which merited consideration. He recognised the extreme ingenuity of the procedure described by the author, but the formation of a raised scar in the vesical wall was not entirely free from the danger to which he had called attention. In the last case of the kind on which he had operated, the phosphatic deposit on the scar was recognised not only by himself, but also by those assisting him.

Mr. STANMORE BISHOP, in reply, explained that the diagrams failed to give an accurate representation of what was really done, adding that it was necessarily very difficult for the draughtsman to sketch from the surgeon's description parts and conditions which he could not be made to see. He admitted that there was a projection into the bladder, but it did not come under the description of a rough, knotty scar, seeing that the mucous membrane was drawn over it and practically enclosed the raw surface completely. In his operation the first object was to close the bladder and cover the surface with mucous membrane, in order to prevent irritation *by* the urine of the uniting parts, and equally to prevent deposition of calcareous or crystalline material *from* the urine.

# A CASE IN WHICH LAPAROTOMY WAS TWICE PERFORMED FOR OBSTRUCTION BY BAND.

By George R. Turner, F.R.C.S., Eng.

Elizabeth S., aged 45, was admitted into St. George's Hospital, July 23rd, 1895, under the care of Mr. Turner, with the history that she was at work, washing, five days previously, when she felt a sudden spasm of pain in the abdomen. This got worse and worse, and she began to vomit frequently from the first, and had complete obstruction of the bowels. Medical treatment giving no relief, she was brought to the hospital.

She was then rather collapsed and looked exceedingly ill, vomiting dark offensive fluid matter from time to time. Laparotomy was at once performed. On opening the abdomen the mesentery was felt as a rope-like twisted band passing downwards to the pelvis. There was a volvulus of the small intestine situated in the left iliac fossa which was readily relieved. On enlarging the incision and examining the neighbourhood of the cœcum, a small loop of the ileum, $3\frac{1}{2}$ inches in length and about $2\frac{1}{2}$ inches from the ileo-cœcal valve, was found constricted by a band attached to the right iliac fossa. This was divided between two ligatures, and the gut, which was of a dark plum colour, released. The intestine had not lost its lustre. Some of the neighbouring coils were injected and coated with lymph. The parts concerned in the volvulus were intensely congested. The wound was closed without drainage. The after progress of the case was uneventful, as she made an uninterrupted recovery. Considering the length of time—five days—her symptoms had existed before the imprisoned gut was released, itscon dition was unexpectedly good. There was no history of previous peritonitis to account for the existence of the band—the exact anatomical relations of which were not thoroughly investigated, as such inquiry would have uselessly prolonged and have added to the dangers of the operation. The twisting of the mesentery and small intestine which were first discovered were probably secondary to the obstruction by the band.

Some six months afterwards, having in the interval been

perfectly well, she was re-admitted into St. George's Hospital on January 20th, 1896. The day before she had been attacked with sudden abdominal pain and frequent vomiting. She said the obstruction was not so low down as in her former attack. On admission, as the symptoms were not then urgent and the sickness had ceased, Mr. Pick, under whose care she now was, decided to watch the case and not immediately to operate. She was slightly sick on the evening of the 20th, but her bowels acted on the 21st, 22nd, and 23rd, and her abdominal pain ceased. On the 26th, however, after purgation, the vomiting re-appeared, and there was no action of the bowels. Abdominal tenderness and pain were marked, but no meteorism.

Mr. Pick performed laparotomy through the scar of the old operation, and in cutting through the abdominal parietes opened ths small intestine, which was adherent to the cicatrix. The wound in the gut was closed by Lembert sutures, and the bowel freed by dissection from its adhesions. A portion of small intestine was found constricted by a band in the left hypochondrium. This band was apparently the result of old peritonitis, and passed deeply backwards towards the vertebræ. The wound was united in the usual way, and a drainage tube inserted for 24 hours. She did well after the operation, the bowels acting on the second day. She went to the convalescent hospital at Wimbledon on February 19th, and was discharged therefrom on February 26th.

All cases of laparotomy for intestinal obstruction are of interest, but one in which the operation had to be repeated for the same condition of affairs, although in another region of the abdomen, is of special importance and more than usually instructive. The prolonged period of obstruction—five days—before the first operation, although not giving rise to a general septic peritonitis, must have been followed by inflammation sufficient to cause adhesion of bowel to the abdominal incision, and to lead to the formation of the peritoneal band which necessitated the second laparotomy. The abdomen was sutured after the first operation by silk-worm gut passing through all the layers of the abdominal parietes, as rapidity in completing the operation on one who had already had five days' obstruction was plainly indicated. I do not know that any other method of suture would have been less likely to have been followed by adhesion of the neighbouring intestine,

but on this point I should be glad for information. It was remarkable how well able to localise the situation of the second band the patient was after her previous experience. She distinctly described it as higher up than on the former occasion.

The case raises the question as to the best incision for second laparotomies. Should it be through the middle line or elsewhere? The condition of affairs related in this case must, I think, be exceptional, and in most cases where the exact seat of obstruction cannot be exactly determined, the middle line should be best, and allows, if it should be present, any tendency to yielding of the scar or actual ventral hernia to be rectified.

## A CASE OF RESECTION OF STRICTURE OF THE SIGMOID FLEXURE; RECOVERY.

By Herbert W. Allingham, F.R.C.S., Eng.

Daniel G., aged 64, was admitted into St. George's Hospital, under the care of Dr. Whipham, in July, 1897, with the following history:—For four months he had passed blood and slime by the rectum. Motions small. Alternating constipation and diarrhœa. The constipation only lasted for two or three days, and afterwards he had severe pain, tenesmus, and tympanites, finally ending in the passage of a formed motion or diarrhœa. He had lost flesh. There was no history of typhoid or dysentery. Dr. Whipham asked me to examine the patient's rectum under an anæsthetic. This was done, nothing being found in the rectum or on a thorough examination of the abdomen. The patient, after undergoing medical treatment, appeared to improve, and left the hospital. He soon returned, complaining as above described, and was re-admitted in order that the abdomen might be opened and the intestines thoroughly explored. Accordingly on August 26th, under ether, I opened the abdomen in the left iliac region sufficiently to introduce my hand into the abdominal cavity. I intended to trace the sigmoid flexure through the fingers, and, if failing to find any disease there, to carefully go through the rest of the large intestine. However, as soon as the hand was introduced into the abdomen and the

sigmoid flexure found, I noticed a hard mass inside the sigmoid about its centre. This was evidently a growth, from the feel. Accordingly the sigmoid was drawn out of the abdominal cavity, and the parts being carefully surrounded with sponges, the gut above and below the mass was secured with drainage tubes, these acting as clamps upon the intestine. The mass, with a healthy piece of intestine on each side of it, was excised, the mesentery of the piece of gut removed being ligatured in one mass. Finally, the divided ends of the gut were brought together over one of my largest sized bobbins.

On August 27th the report was :—Pulse quiet. Temperature normal. Little distension. A rectal tube was passed and retained for some hours; through this tube much flatus escaped.

From August 27th to September 1st the rectal tube, to relieve distension, was frequently used, and afforded great relief. On September 1st, after an enema, the bowels acted freely. On September 4th the abdominal sutures were removed, as there was a little suppuration about the stitches. Patient generally doing well. On September 11th there was a little pus oozing from the centre of the wound, and this was thought to be fæcal stained. On September 13th there was a little more fæcal-like pus coming away from the wound. On September 17th the notes record that there had been no discharge from the wound since 13th. The patient rapidly improved. Bowels acting daily by the rectum. No pain, no blood or pus found. On October 2nd he got up, and left the hospital on October 9th, and since then he has been perfectly well and quite free of the symptoms he complained of when admitted to the hospital. Although the nurses carefully examined the fæces for the hard portion of the bobbin, it was not found.

The after treatment of this case was conducted on common-sense principles, and it is greatly due to the care and attention of my house surgeon, Mr. Llewellyn Powell, that the patient made such an uninterrupted recovery. When in pain, morphia was given; when thirsty, water was allowed ; when distension occurred, it was relieved by the use of the rectal tube. For a fortnight he was fed with the lightest and most easily digested fluids.

It will be noted in this case I used a decalcified bone bobbin to unite the ends of the gut together. I know many despise the use of even a decalcified bobbin, for what reasons I fail to under-

stand. Being decalcified it does no harm, but greatly facilitates a rapid performance of the operation, and acting as a splint, I am sure for a day or two it keeps the approximated parts in exact apposition and at rest, and therefore assists in a safe and secure union of one end of the divided gut to the other. In about a week's time it is absorbed, and, therefore, does not remain for months as a foreign body in the intestines as Murphy's iron button is apt to do.

Patient shown.

Resected portion of intestine shown.

Microscopic report by Dr. Cyril Ogle read and microscopic specimen exhibited.

Mr. Wallis, referring to Mr. Allingham's remark that he had tied the mesentery in one lump, to save time, asked for details of this procedure, in view of the fact that a large amount of time was often spent in tying the mesentery under circumstances which rendered time very precious. He observed, too, that the author had been very sparing of details in respect of the manner in which he united the gut over his bobbin, and he asked whether one or several lines of suture was or were employed. With regard to Mr. Turner's case, he suggested that Mr. Turner would probably remember a case shown by Mr. Cripps before the Society, in which the intestine had become adherent to the scar, and was cut into when, on a second operation becoming necessary, the incision was made through the scar of the previous operation. He insisted, in view of these cases, on the undesirability of using the same line of incision.

Mr. Swinford Edwards agreed that, where a second operation had to be performed, it would be very much better to avoid the old scar, on account of the danger of adhesion of intestine. He asked for what disease had the author resected the sigmoid flexure, which was not stated to be malignant? If malignant, the patient was fortunate in that the growth was not lower down, where it could not have been removed with so little mutilation. He also asked what sutures were employed.

Mr. John Morgan also asked for details as to the method of suturing the intestine over the bobbin. The specimen, he observed, appeared to be a malignant growth, but it did not involve the whole circumference of the gut, and the patient was consequently free from the immense amount of hypertrophy which often took place above a stricture. He referred to the case of a patient of Dr. Bruce's, a lady aged 34, who presented symptoms of intestinal obstruction of obscure causation, to relieve which he had to open the abdomen. He discovered a very tightly-strictured portion of the colon close to the spleen. This constriction was not caused by malignant disease, but by cicatrisation of some portion of the mesentery in consequence of former tuberculous mischief. The bowel was much narrowed, and the difficulty arose when, after removal, he wished to join the ends, the portion above being enormously thickened and distended. Below, of course, the contrary condition obtained, and the wall there was as thin as tissue paper. On removing the strictured portion of gut, the contents of the upper part were ejected with considerable force, and when this had subsided it proved a matter of extreme difficulty to join

the two ends, the wall of the lower portion not being capable of holding a suture. He asked what course Mr. Allingham would advise under such circumstances ?

Mr. ALLINGHAM, in reply, said he had picked up the idea of tying the mesentery *en bloc* from Mr. Mayo Robson, at a meeting of the Clinical Society. He explained his method of securing the bobbin as described by him in the paper which he had read before the Society last year. He used a continuous suture round each end of the intestine, putting in a few supplementary points where they appeared necessary. He used Spencer Wells' twisted silk for his ligatures. The disease was an ordinary cylindrical epithelioma. It may not have been quite a case of stricture properly speaking, but the passage left open was very small, and clinically the patient presented all the symptoms of stricture. In such a case as that described by Mr. Morgan—viz., where the intestine was greatly distended above and contracted below—he would be inclined to sew up each end of the divided gut, and then join them by lateral anastomosis, with or without a bobbin.

Mr. TURNER, in reply, said he had hoped to hear Mr. Malcolm on the subject, he having performed a second laparotomy some 20 times. It would, he suggested, have been interesting to hear whether Mr. Malcolm operated through the old scar or not. He himself opined that the question of cutting near the old incision or not must depend upon the reason for which the second operation was being done. In his own case the operation was done for constriction by a band far from the middle line ; but the intestines were covered with lymph on the occasion of the previous operation, and under such circumstances he admitted that it might have been well to avoid the line of the old incision. In other cases, however, in which laparotomy had to be performed a second time, when there had been no peritonitis at the first operation, he thought that if the operation were undertaken for intestinal obstruction the exact nature of which was unknown, the choice of the middle line presented some advantages. If, however, they knew definitely why they were operating, then an incision over one or other of the lineæ semilunares or elsewhere would perhaps be indicated, in preference to the middle line.

*February 1st, 15th, and March 1st.*

# LETTSOMIAN LECTURES: DISEASES OF THE NOSE AND THROAT IN RELATION TO GENERAL MEDICINE.

By F. de Havilland Hall, M.D., F.R.C.P.

## LECTURE I.

Mr. President and Gentlemen,—When your Council did me the honour of requesting me to deliver the Lettsomian Lectures, my first thought was: Had I anything worthy of presentation before so distinguished an audience?

It then occurred to me that between the position of the Medical Society of London and my own there was a certain resemblance. The Society is always ready to receive papers on general medicine, at the same time it welcomes with equal pleasure the contributions of those of its fellows who have devoted themselves to special branches of practice. My position is this. I am physician to a general hospital, and consequently all forms of diseases come under my care; at the same time, in virtue of having held for nearly twenty years the post of physician in charge of the nose and throat department at the Westminster Hospital, I may be considered to have more or less special knowledge of the diseases of the nose and throat. These being our respective positions, I thought that I could not do better than submit for your acceptance some reflections on the relation existing between diseases of the nose and throat and general medicine, as in the dual capacity in which I stand, I am perhaps better able to see the two sides of the question than either the pure specialist or the general practitioner.

There are two chief methods of treating the subject I have chosen. You can either briefly run over the principal general diseases and point out the nose and throat complications which occur during their course, or you can start with the various diseases of the nose and throat and then mention the conditions under which they may be met. I have selected the former plan

as being the more suitable for my purpose. I therefore propose to pass in review some of the principal general and local diseases of the body, and describe the various affections of the nose and throat which occur during their course. If you will pardon a digression, I should like to take this opportunity of emphasising the importance of the laryngoscope as a means of diagnosis and treatment. I often hear it compared with the ophthalmoscope, and I have heard students say that they have not time to perfect themselves in both, so they have chosen the ophthalmoscope.

For the general practitioner, however, there can be no sort of doubt that the laryngoscope is immensely more useful than the ophthalmoscope. I am ready to admit that the ophthalmoscope is very often useful in settling a diagnosis, but as far as I can learn there are only two conditions in which the ophthalmoscope is essential to a diagnosis, viz., the presence of optic neuritis as indicative of some organic disease within the brain, and the occurrence of retinitis as an early sign of renal disease. Its use from a therapeutic point of view is extremely limited. On the other hand, I might well occupy the whole of one of these lectures in describing the use of the laryngoscope in the diagnosis and treatment of disease, and I know of no speciality in which even a moderate amount of knowledge is so sure of a good harvest as that of laryngoscopy. The general practitioner who has made himself familiar with the laryngoscope has largely increased his sphere of usefulness. Far be it from me to run down the ophthalmoscope, on the contrary, I hope the time will come ere long when no one will be licensed to practise unless he can show that he is capable of using the laryngoscope, ophthalmoscope, and other instrumental means of diagnosis. The use of the nasal speculum and rhinoscope is so closely connected with that of the laryngoscope, that the student who learns how to use the latter will, as a matter of course, employ the former. This digression will, I hope, be pardoned, but I felt it a duty to speak plainly on the subject, as, owing to the deficiency in the system of examination as now carried on, students are not induced to perfect themselves in the use of the laryngoscope.

Before entering upon a description of the nose and throat affections of the acute specific diseases, I would like to accentuate the extreme importance of the nose and throat as the chief portals of entrance of the poisons, whatever they may be, which

give rise to these diseases. Evidence is gradually being accumulated which points to the conclusion that people who suffer from nasal affections are more liable to contract infectious diseases—especially diphtheria—than healthy persons.

In erysipelas of the face it is very frequently found that there is some chronic nasal affection, and that the erysipelatous blush started from the nose. This I have often been able to demonstrate in hospital cases under my care. If we except water-borne diseases, such as cholera and dysentery, almost all the other infectious diseases are conveyed by the air, and hence the morbific agent usually enters by way of the nasal cavities and pharynx, and here it proliferates during the first stage of incubation. Two cases of artificially-produced disease of the nose brought forcibly before me the risk of operative procedures on the nasal mucous membrane in persons exposed to infectious diseases. In both these cases I had used the galvano-cautery for the cure of hypertrophic rhinitis, and in both symptoms of scarlet fever manifested themselves two or three days after the application of the cautery. The first case might be merely a coincidence, but the second case was that of a medical man, who, as house physician at a London hospital, had been constantly exposed to the infection of scarlet fever without effect, until I unluckily made a way, as I believe, for the entrance of the germs through the abraded mucous membrane of the nose. The practical conclusion that I would draw from the above is the advisability of abstaining from operative procedures on the nasal mucous membrane during epidemics of influenza and other infectious diseases, as well as in the case of persons liable to be brought in contact with such diseases. I have also abstained from operating on medical students and others whose duties take them into the dissecting or *post-mortem* rooms. Lacunar tonsillitis occasionally follows intra-nasal cauterisation. I have seen it in one or two cases of my own, and numerous instances are to be found recorded in the various special journals.

The *rôle* played by the tonsils as a point of entrance of germs into the system is now becoming more generally recognised. Gerhardt has termed the tonsil a physiological wound—an inlet guarded however by leucocytes, which protect the system against the entrance of these germs. If from any reason the energy of the leucocytes is diminished, or the tonsil is in an unhealthy

condition, then the germs of disease, such as scarlet fever, diphtheria, and other infectious diseases gain access to the system. Tubercle bacilli can probably pass through the tonsils, and, without giving rise to any disturbance in them, may produce tuberculosis of the glands of the neck. Staphylococci, streptococci, and other micro-organisms can also find their way into the system through the tonsils. Adenoid vegetations in the naso-pharynx have a similar action to the tonsils in this respect, and there can be little doubt that one of the beneficial results of Wilhelm Meyer's discovery will be a lessened amount of danger in cases of scarlet fever and diphtheria, and especially a great diminution in disease of the middle ear.

As I have already pointed out, in a large proportion of the infectious diseases the morbific element is conveyed by the air, and consequently usually enters the system *viâ* the upper respiratory tract, hence it was to be expected that this region would show signs of irritation. The typical example of this is diphtheria, in which the disease in the first instance is a purely local one, consisting of a fibrinous exudation caused by the Klebs-Loeffler bacillus, and it is not until the toxines produced by these bacilli in their growth have been absorbed that we have constitutional symptoms.

Most of the infectious diseases give rise to a catarrhal condition of the air passages, this is especially the case in measles; in some the engorgement of the nasal mucous membrane finds relief in epistaxis—so common a prodromal symptom in enteric fever. The naso-pharynx may be the starting point of some diseases. Notably, I believe, is this the case in influenza. I have already discussed the *rôle* of the faucial tonsils as the starting point of scarlet fever, diphtheria, &c. The larynx deserves especial attention in diphtheria, small-pox, and enteric fever.

And, lastly, it should be remembered that all diseased conditions of the mucous membrane of the nose, naso-pharynx, pharynx, and larynx, whether merely local, as an abraded surface, or as a part of a general disease, such as scarlet fever, are liable to be accompanied by a secondary diphtheritic inflammation, and that this is a very grave complication, especially in the case of the acute specific fevers.

I will now proceed to describe at greater length the changes seen in the nose and throat as a result of the acute infectious diseases.

## Small-pox.

This disease is occasionally ushered in with catarrhal symptoms, *e.g*, sneezing, epistaxis, intolerance of light, lachrymation, sore throat with redness and some swelling of the palate and tonsils, and hoarseness; symptoms which it is important to emphasise, as they may cause the disease to be mistaken for measles.

In the malignant form of small-pox there may be profuse epistaxis.

The pustules of small-pox have been seen in the nostrils, mouth, pharynx, and larynx; they have been noticed as low down as the bronchia of the second or third order. The eruption may occur on any part of the mouth; salivation is present, and is very severe in the confluent form of the disease.*

If the soft palate is affected, there is usually much inflammatory swelling and an abscess sometimes results. Owing to the moisture of the mouth, the pocks seldom form well marked pustules. At first they appear as whitish grey, slightly elevated spots, which soon soften and form superficial ulcerations, surrounded by a red zone. The larynx in small-pox may be the seat of an inflammatory process causing congestion of the mucous membrane, or there may be a papular or pustular eruption, giving rise to but little discomfort. In severe cases, however, about the ninth to the twelfth day great swelling of the laryngeal mucous membrane may occur, and suffocative attacks due to œdema of the epiglottis, and ary-epiglottic folds come on. Trousseau records three cases in which the progress of the disease was so rapid that death occurred before relief could be obtained. In a case of hæmorrhagic small-pox Morell Mackenzie † found "ecchymotic spots on the under surface of the epiglottis, and on the mucous membrane over the arytenoid cartilage," and Gevaert ‡ has described a case of submucous hæmorrhage in the ary-epiglottic folds, forming two thick sacs and considerably interfering with access to the larynx. In some cases ulceration extends down to the cartilages, causing necrosis, and death may result from impaction of a piece of extruded cartilage in the glottis; or, owing to more or less

* Gibb, 'Diseases of the Throat,' p. 285.

† 'Diseases of the Throat and Nose,' vol. i, p. 191.

‡ 'Centralblatt für Laryngologie,' vol. xii, p. 350.

destruction of the framework of the larynx and cicatrical contraction, stenosis may occur, even after the lapse of many years. I knew one patient in whom tracheotomy had to be performed 38 years after the attack of small-pox, and during the whole of this period she was the subject of a chronic laryngeal affection. If the crico-arytenoid joint becomes involved in the inflammatory mischief, anchylosis may occur and the patient will recover with a permanently fixed cord; this condition rather than paralysis is probably the explanation of two cases described by Morell Mackenzie * in which he says permanent paralysis of the adductor of a vocal cord followed small-pox.

As in the other acute specific diseases, the excoriated condition of the mucous membrane of the upper air passages renders it vulnerable to the bacillus of diphtheria, hence a diphtheritic exudation may appear on the fauces, or the patient may have the signs of a membranous laryngitis. This form of laryngeal affection usually begins about the tenth day, and runs a rapid and fatal course. Fortunately it is a rare complication; Dr. Ricketts, Medical Superintendent of the Small-pox Hospital Ships, Metropolitan Asylums Board, writes to me: "I remember only two cases which I regarded as diphtheria (in about 5,000 cases). In a few more I have seen semi-membranous exudation on the fauces. But I have in no case made a bacteriological examination. In fact, the cases I speak of occurred some little time back, before I had the means of making such an examination."

### Varicella.

According to M. Rondot † varicella is often accompanied by a mild sore throat, and he has been able to verify the existence of a varicellous eruption on the buccal mucous membrane even in the absence of a cutaneous manifestation. In this case the diagnosis is based on the objective character of the ulceration of the mouth, on the concomitant sore throat, and the presence of an epidemic of varicella.

Whatever may be thought of a varicellous eruption limited to the mouth, there is no doubt that in typical cases of varicella, vesicles with reddened bases may be seen on the palate; on the

* 'Diseases of the Throat and Nose,' vol. i, p. 192.

† 'Revue de Laryngologie, &c.,' 1890, p. 31.

lips, tongue, and cheeks, small round superficial ulcers occur, seemingly the result of the breaking down of a vesicle—in other words the eruption of varicella may occur on mucous membranes as well as on the skin. I would lay stress on this point, as Osler and some other writers do not mention the possible occurrence of the buccal eruption. Varicella resembles small-pox, inasmuch as the eruption may occur, though very rarely, in the larynx. Marfan and Hallé* report two cases. The first case, a child aged 3 years, was admitted into hospital on account of suffocative attacks. In spite of the absence of a membrane antitoxin was injected. Bacteriological examination, however, showed the absence of the bacilli of diphtheria. Tracheotomy was necessary, and the eruption of varicella was then seen. The patient recovered. In the second case the child died of broncho-pneumonia, and ulceration of the vocal cords was found.

### Measles.

The sneezing and running from the nose, which are the earliest premonitory symptoms of measles, indicate the existence of an acute nasal catarrh. The discharge is at first clear and watery, but soon becomes muco-purulent, and often excoriates the upper lip. As a rule the nasal catarrh disappears with the decline of the rash, but under unfavourable hygienic conditions in badly nourished children the discharge may continue and be the commencement of a chronic purulent rhinitis. Epistaxis may occur in the prodromal stage of measles, and in rare cases the loss of blood may be so great as to threaten life. According to Wolff † the accessory cavities of the nose are always affected in measles, sometimes with catarrhal inflammation, at others with purulent. This statement must, however, be received with a considerable amount of caution, especially with regard to purulent inflammation, in view of the rarity of acute affections of the nasal sinuses.

On the second or third day of the disease hyperæmia of the roof of the mouth and soft palate is to be seen, followed by an eruption of small red points or patches, giving a stippled redness to the parts. The term "endanthem" has been applied to this

* 'Centralblatt für Laryngologie,' vol. xii, p. 499.

† *Ibid.*, vol. xi, p. 961.

appearance. Inasmuch as this eruption is almost invariably present, and as it precedes the rash on the skin, it is of diagnostic importance where there is an unusually prolonged prodromal stage, and in dark races of mankind, in whom it is very difficult to recognise the cutaneous eruption.

In delicate children severe stomatitis, and even cancrum oris may develop; I remember Dr. Gee impressing on me, when a student, that measles was the most common cause of cancrum oris. The prognosis in these cases is very grave. The tonsils and mucous membrane of the pharynx generally are inflamed and swollen: the inflammatory mischief occasionally spreads up the Eustachian tube, and gives rise to ear-ache or even otitis media, but the latter is very rare in comparison to what happens in scarlet fever.

Catarrh of the larynx is as much a part of the disease as nasal catarrh. The hoarseness and constant irritable cough which are so frequently met with in the first stage of the disease point to the implication of the larynx.

Von Ziemssen* speaks of having repeatedly seen a deep uniform redness of the laryngeal mucous membrane, with a yellow-reddish colour of the vocal cords.

In rare cases measles come on with the symptoms of laryngeal obstruction, and as the rash comes out these subside. Owing to the tendency to spasm in children, the cough is not infrequently of a croupy character. In the severe forms of laryngitis, ulceration of the mucous membrane, and even an abscess, may occur, or death may, in rare cases, be due to œdema of the larynx. Dr. Major† of Montreal has recorded a case of complete aphonia, without the slightest embarrassment of respiration, coming on during an attack of measles of more than usual severity. On laryngoscopic examination the left arytenoid was found fixed at full inspiration, and completely immovable. There was redness about the joint, and external tenderness. The larynx was otherwise normal.

Membranous laryngitis is an infrequent but very dangerous complication of measles. According to Morell Mackenzie‡ it is even more fatal than the corresponding scarlatinal affection, 80 per cent. of the cases proving fatal. This complication is in

* 'Cyclopædia of Medicine,' vol. iv, p. 201. English Trans.

† 'New York Medical Journal,' 1887, vol. ii, p. 347.

‡ 'Diseases of the Throat and Nose,' vol. i, p. 190.

the majority of cases true diphtheria. "It usually supervenes during the eruptive stage, often just when the rash is fading; sometimes it arises later. The symptoms of laryngeal obstruction develop with great rapidity, and are accompanied by a rise of temperature." *

Dr. H. Smith † has recorded the occurrence of three cases of paralysis of the intrinsic muscles of the larynx. The paralysis set in within a few days after the subsidence of the fever. Loss of phonation was the only symptom. There was no congestion or inflammation of the larynx present. The first case lasted about ten days (without any treatment). The second and third cases lasted about six days (treated with strychnine).

I have seen aphonia due to paresis of the thyro-arytenoid muscles coming on after measles and cured by strychnine and faradization.

### Roetheln. German Measles.

In this disease there is frequently slight nasal catarrh, but not to be compared to what is met with in measles. A sore throat, which resembles the early stage of the scarlatinal sore throat, is usually present; indeed, it was on this account that roetheln was originally regarded as a hybrid between scarlet fever and measles, *i.e.*, it was said to have the sore throat of scarlet fever and the rash of measles. As a rule there is only a moderate amount of injection of the throat, with some swelling of the tonsils; there is hardly ever any ulceration, and never any sloughing. I would insist on the constancy of sore throat as a symptom of German measles, as Osler, in his otherwise admirable text-book on medicine, makes no mention of its occurrence.

### Scarlet Fever.

One of the most important of the recent advances in the treatment of infectious diseases is the attention directed to the condition of the nose and naso-pharynx. In no disease is this more necessary than in scarlet fever. In severe forms of this disease the nostrils and naso-pharynx may become affected by extension from the pharynx.

* 'A Manual of Infectious Diseases,' Goodall and Washbourn, p. 174.

† 'British Medical Journal,' 1892, vol. ii, p. 1108.

The Eustachian tubes opening into the naso-pharynx participate in the inflammatory mischief, which, spreading up the tubes, gives rise to otitis media, and all the dangers to life and hearing therewith connected. At the commencement there may be noticed a catarrhal condition of the nasal mucous membrane, but the discharge rapidly becomes muco-purulent and very acrid, so that it excoriates the upper lip. In case of a malignant type the mucous membrane may slough in places, and necrosis of bone and cartilage may result.

In scarlet fever the streptococci of pus develop in great numbers in the mucous discharge; cervical adenitis and abscess, purulent otitis media, endocarditis, pleurisy, &c., are due to their absorption, hence the importance of local treatment.*

In some cases epistaxis occurs at the commencement of the disease; when it occurs towards the end or during convalescence, it is to be attributed rather to the kidney condition than to the fever.

If a nasal discharge comes on during convalescence, the secretion should be submitted to bacteriological examination, as post-scarlatinal diphtheria may attack the nasal passages primarily or exclusively.

As in measles, the accessory sinuses, according to Wolff, † are always affected, the inflammation being sometimes of a catarrhal nature; in other cases suppuration may occur. I have already expressed my doubts as to the constant affection of the sinuses in measles, and I would repeat them again in respect to scarlet fever.

It is quite unnecessary for me in this assembly to enter upon a description of the condition of the throat in scarlet fever. In passing, however, I should like to direct your attention to a very important practical point which I think is often overlooked, resulting in the occurrence of preventable disease and death. I cannot do better than quote Dr. Dukes, ‡ the able physician to Rugby School:—"There is a class of sore throats—to all appearance often only simple acute tonsillitis, while at others having a membranous or sloughing appearance, and with a complete absence of eruption on the skin—occurring in those who have

* 'Archives of Pediatrics,' Jan. 2nd, 1894.

† 'Centralblatt für Laryngologie,' vol. xi, p. 961.

‡ 'Health at School,' p. 292.

already had scarlatina; this kind of sore throat, however, is capable of passing on scarlatina to an individual who has not already been affected by it. Scarlatina is often spread extensively by this means; for if the patient has suffered previously from scarlatina, these sore throats are looked upon as simple non-infectious sore throats, and are consequently not carefully isolated for three or four days, as they should be."

The occurrence of a membranous inflammation of the throat during the course of scarlet fever has attracted much attention of late years. It is now pretty generally agreed that a membrane may present itself at two periods of the disease:* (1) during the acute stage, *i.e.*, during the period of eruption, and (2) during convalescence, or even later.

(1) The membrane which occurs in the first period, though it may be whitish-grey, thick and adherent, and to the naked eye hardly at all to be distinguished from a true diphtheritic membrane, is proved by bacteriological examination to be due to streptococci, and not to contain the Klebs-Loeffler bacillus.

It may also be distinguished clinically from diphtheria by not spreading to the larynx and by not recurring locally.

Dr. Sidney Martin† suggests that the throat already attacked by scarlet fever poison is rendered less capable of resisting the invasion of other organisms.

(2) The membrane met with in the second period contains the Klebs-Loeffler bacillus, and as this is accompanied by the presence of streptococci, the disease represents a very grave combination.

It is of course possible that diphtheria may occur as a complication of scarlet fever during the early stage, but this is, according to Dr. Washbourn,‡ a very rare mishap; the only way of arriving at a correct diagnosis is a bacteriological examination. As regards the method of infection, Dr. Goodall§ is of opinion that the introduction of diphtheria into the Asylums Board's fever hospitals is generally due to infection from mild cases of that disease inadvertently admitted as scarlet fever. He thinks that the susceptibility of scarlet fever patients to the infection of diphtheria has been greatly exaggerated, for the great majority of

* 'Transactions of Clinical Society,' vol. xxvii, p. 84.

† 'Lancet,' 1894, vol. i, p. 151.

‡ 'British Medical Journal,' 1894, vol. i, p. 130.

§ 'Lancet,' 1896, vol. i, p. 710.

those exposed to it in the observation ward, when the diagnosis was clinical only, did not contract it.

It would appear that scarlet fever alone is not the predisposing cause to this mixed infection. According to Dr. Goodall, "the prevalence of post-scarlatinal diphtheria has closely followed that of the primary form, and its incidence had not been materially higher among the scarlet fever patients in the hospitals than among the juvenile population of the metropolis of like ages." This would seem to suggest that the entrance to the diphtheritic bacillus is facilitated by the presence of some other organism, possibly streptococci.

Laryngeal mischief in connection with scarlet fever, apart from diphtheria, is rare. Dr. Washbourn,* however, states that he has seen cases of ulceration of the larynx in scarlet fever, unaccompanied by membranous exudation.

Mr. Pepper† has recorded a case, of which the heading of the paper he read before the Clinical Society gives an epitome:—Scarlet fever: Secondary sore throat on fifty-fourth day; severe bleeding on fifty-eighth; ligature of left common carotid on fifty-ninth; hoarseness followed by sudden aphonia on same day as hæmorrhage; bursting of retro-pharyngeal abscess after application of ligature; recovery, with fixation of left vocal cord. In reference to the laryngeal condition, Mr. Pepper writes:—"The sudden change in the voice from huskiness to complete aphonia came on prior to the operation, and must have been due either to œdema of the mucous membrane of the larynx, or to stretching of the vagus nerve from the extensive extravasation into the tissues of the neck." Dr. Mahomed examined the patient when he was convalescent, and reported that the left cord was still almost completely fixed, and added:—"Whether this fixation is due to paralysis or to inflammatory swelling, I am by no means certain; I am inclined to think the latter." To me the history of the case clearly points to inflammatory mischief in the neighbourhood of the left crico-arytenoid joint, causing arthritis and subsequent anchylosis of this joint. Gevaert‡ of Ghent mentions a case of scarlatinal angina in which, on account of stenosis of the larynx and threatened asphyxia, tracheotomy had to be performed.

* 'Lancet,' 1894, vol. i, p. 151.

† 'Transactions of Clinical Society,' vol. xvi, p. 21.

‡ 'Centralblatt für Laryngologie,' vol. xii, p. 160.

## Whooping Cough.

Whooping cough almost invariably begins with a catarrhal stage, the nasal mucous membrane sharing in the catarrhal condition. During the paroxysmal stage epistaxis is a common symptom, and so far from being a grave one, it often seems to relieve the patient. There is a difference of opinion as to whether there are any constant changes to be seen in the larynx during life. Von Herff,* while suffering from an attack, made a series of examinations upon his own larynx. He noted in the first stage a slight catarrh of the larynx, which became very intense during the spasmodic stage; the vocal cords, however, were not affected. The hyperæmia extended into the trachea. During every paroxysm a pellet of mucus could be seen on the posterior wall of the larynx, on a level with the glottis; when this was expelled the attack ceased.

## Influenza.

Influenza is essentially a catarrhal disease, that is to say, the micro-organism—almost certainly that described by Pfeiffer—seems to attack the mucous membranes in the first instance, in some cases its effects are almost confined to them, and in nearly every case they experience the chief brunt of the disease. Very curiously Landgraf† states that he has seen rhinitis only once in 216 cases of influenza. He adds that this is the more surprising as in text-books it is reckoned as one of the most common symptoms of influenza. The only explanation that seems forthcoming is that Landgraf would not class a catarrhal state of the nose as rhinitis, but reserves the latter for severe inflammatory condition of the nose.

The nose, as being the chief portal for the entrance of the specific bacillus which is taken in with the inspired air, is early affected, and the excessive sneezing, marked interference with nasal respiration, and profuse running from the nose testify to the violence of the attack. In many cases the acuteness of the catarrh causes a certain amount of hæmorrhage from the nose. Occasionally this has been of an alarming nature, the bleeding occurring from

* 'Medical Record,' March 5th, 1887.

† 'Revue de Laryngologie,' 1890, p. 499.

the posterior third of the nasal cavity; in some cases, indeed, a special hæmorrhagic tendency seems to have developed during the course of the disease. A frequent sequel of the rhinitis of influenza is some alteration in the sense of smell. Usually it takes the form of simple loss of the sense of smell—anosmia; more rarely the anosmia is accompanied by perverted olfactory sensations—parosmia. I have met with all degrees of anosmia, from slight impairment of the sense of smell to its complete loss. As a matter of course, the loss of the sensation of smell was accompanied by loss of so much of the sense of taste as depends on flavour. I have no note as to the loss of gustatory sensations.

One of my patients was a lady 28 years of age, who originally consulted me for debility, neuralgia, and violent fits of sneezing. She improved under the administration of iron and arsenic. I did not adopt any local treatment for the nose. In March, 1895, she had a mild attack of influenza, which was followed by cessation of the attacks of sneezing, but she lost her sense of smell. The latter has persisted up to the present in spite of treatment. This case would seem to suggest that the inflammatory condition of the nasal mucosa led to changes both in the filaments of the fifth nerve in the nose and also in those of the olfactory, in the one case abolishing the hyperæsthesia, and thus stopping the sneezing, and in the other case annihilating the normal sensibility of the nerve and causing anosmia.

The accessory cavities of the nose are very liable to be affected in influenza, the intense frontal headache being due in many cases to extension of the catarrhal process from the nose to the frontal sinuses. In one patient under my care the pain and feeling of weight and fulness persisted so long after the influenzal attack that I thought it would have been necessary to adopt surgical measures to obtain relief; the patient, however, recovered without operation.

Dr. Felix Semon * has narrated his personal experience of acute inflammation of the left antrum of Highmore after influenza, and many similar cases have been recorded. Cases of antral disease coming on in this acute manner respond much more quickly to treatment than those developing more gradually.

In many cases the influenzal attack begins with symptoms referred to the naso-pharyngeal space, and it appears to be the

* 'British Medical Journal,' 1894, vol. i, pp. 237, 408, 574, 681.

starting point of a large number of local affections coming on during influenza, notably otitis media and its results, and it may be the centre of the systemic infection. The patient complains of severe headache extending to the back, difficulty in breathing through the nose, and the sensation of a foreign body, variously referred to the nose or throat, so that the patient is constantly hawking or trying to clear the throat. On making a rhinoscopic examination, the mucous membrane of the naso-pharynx will be found much swollen and covered in places with a viscid secretion; in exceptional cases I have seen follicular inflammation of the pharyngeal tonsil.

Shelley* has called attention to the existence of a vesicular eruption on the palate as a sign of influenza.

Acute pharyngeal catarrh is a very common condition in influenza; the mucous membrane is of a purplish colour and œdematous, and in consequence of the swelling and the muscular infiltration, pain and difficulty in swallowing usually exist. The faucial tonsils, like the pharyngeal, may be the seat of follicular inflammation, with or without peri-tonsillar mischief; they may be covered with a pultaceous exudation. On more than one occasion I have seen influenza start in a household with one inmate being attacked with what was apparently an ordinary lacunar tonsillitis, and it was only the fact of other members of the family speedily succumbing to one of the more ordinary varieties of influenza that cleared up the diagnosis in the first case. Occasionally the inflammatory mischief runs a very severe course. In one patient I saw in consultation with Dr. Penny, the condition was that of a phlegmonous pharyngitis, as there was great swelling of the pharynx, followed by suppuration, and the urine contained much albumen. This patient recovered. In two other cases a membranous exudation formed on the soft palate. It resembled in some respects a diphtheritic membrane, but unfortunately in neither case was a bacteriological examination made; in both patients the urine was albuminous. Both these patients died. One of the most common of the complications of influenza is laryngitis, of all degrees of severity. In the mildest cases the larynx is seen to be the seat of a slight catarrh, the symptoms being a troublesome, irritable cough, difficult to cure, with hoarseness or even loss of voice. In more severe cases the vocal cords

* 'British Medical Journal,' 1893, vol. i, p. 79.

are intensely injected, the sputa may be tinged with blood, and occasionally the expectoration of blood has been so profuse as to warrant the term of hæmorrhagic laryngitis being applied. As I have already stated, when speaking of influenzal epistaxis, a hæmorrhagic tendency is distinctly developed in some cases of influenza. The presence of dysphagia is said to differentiate the hæmorrhagic laryngitis of influenza from the ordinary forms of hæmorrhagic laryngitis; this statement requires confirmation.*

Several authorities have noted infra-glottic swelling in cases of influenzal laryngitis; Fraenkel † regards as characteristic of this disease a fibrinous infiltration of the vocal cords, giving a whitish appearance in places to the cord; this is followed by a superficial loss of epithelium. Ulceration of the vocal cords, apart from any fibrinous exudation, has been described in influenza. The ulcers are quite superficial, occur in the anterior part of the cords, and usually heal rapidly. In severe cases, swelling of the ary-epiglottic folds, occasionally amounting to œdema of the larynx, has been noted.

Abscess of the larynx has been met with as a complication of influenza. Schaeffer ‡ records a case in which abscesses developed in three different parts of the larynx; tracheotomy was required on account of the dyspnœa, the canula was able to be removed after eight days, and the patient made a good recovery.

The most common paralytic affection of the muscles of the larynx met with in influenza is paralysis of the adductors and tensors of the cords, giving rise to loss of voice. Lublinski § has recorded one case of paralysis of the posterior crico-arytenoid on the left side, which recovered in the fourth week, and I have seen bilateral abductor paralysis follow a severe attack of influenza.

Kuttner || showed, at the Berlin Laryngological Society, a woman 54 years of age, who had, during an attack of influenza, paresis of the soft palate and muscles of the posterior wall of the pharynx on the left side, and paralysis of the corresponding cord. He regarded it as a case of recurrent paralysis of neuritic origin.

* 'Revue de Laryngologie,' 1890, p. 613.
† 'Centralblatt für Laryngologie,' vol. vii, p. 38.
‡ 'Deutsche Medicin. Wochenschrift,' 1890, No. 10.
§ 'Centralblatt für Laryngologie,' vol. xii, p. 136.
|| *Ibid.*, p. 135.

### Enteric Fever.

In enteric fever there is a tendency to a catarrhal state of the mucous membranes, and the pituitary membrane suffers with the others. Two symptoms met with in enteric fever are due to the catarrh of the nose, viz., the deafness which results from extension of the catarrhal process to the Eustachian tubes, and their consequent occlusion, and epistaxis.

Epistaxis is so common a symptom at the commencement of enteric fever that given a young adult who is feverish and has had an attack of nose bleeding, the possibility of enteric fever should be borne in mind. Epistaxis is most frequent in the first week of typhoid, on the second or third day. As a rule, it is of no prognostic significance, but occasionally the loss of blood has been so excessive as to destroy life.

Devic * states that buccal ulceration is fairly common in enteric fever. The ulceration is always superficial, oval or round in shape, with regular and not undermined margins. It occurs most frequently on the anterior pillars of the fauces. The lateral aspect of the tongue, the anterior surface of the soft palate, and, lastly, the tip of the tongue come next in order of frequency. The ulcers may be red or yellowish-red, and are frequently covered with mucus, but a false membrane never occurs. As there are usually no symptoms, the ulceration must be specially looked for in order to be recognised. According to Tripier, these ulcers run an absolutely parallel course with the intestinal lesion; he therefore considers them of great value as a guide to the condition of the intestines. Devic has been able in three cases to predict a relapse owing to the fact that, though the patient had improved and the temperature was lower, there was no attempt at cicatrisation of the buccal ulceration. He has met with this condition in about one-sixth of the cases of enteric fever; they do not in themselves affect the prognosis. They are best treated by mild antiseptic lotions; caustics are unnecessary.

At the commencement of enteric fever there may be some erythema of the pharynx and enlargement of the tonsils, but there is nothing characteristic. Dr. Gee † says "sore throat

* 'British Medical Journal,' 1896, vol. i, Epitome 213. *See* also Vourviller, 'Centralblatt für Laryngologie,' vol. vii, p. 13.

† 'St. Bartholomew's Hospital Reports,' vol. x, p. 12.

attends the first few days of typhoid fever with a frequency which is remarkable. Hereby for a time perplexities in diagnosis may occur." He regards it as a necessary part of the febrile state rather than a symptom of the specific fever. Ulceration of the pharynx has been noted in exceptional cases. According to Morell Mackenzie,* an herpetic eruption is occasionally seen on the mucous membrane of the pharynx and mouth, accompanied by pain in deglutition.

As in the other acute specific diseases, a secondary diphtheritic deposit may occur on the fauces of patients suffering from typhoid fever. It usually occurs during the third week, and is a serious and fatal, but fortunately rare, complication. Out of six cases mentioned by Oulmont, five terminated in death, and Peter states that it has been fatal in all the instances he has met with.†

Clinically, the laryngeal changes in typhoid fever may be considered according as to whether they occur as a complication of the fever or whether the symptoms they present are so severe as to mask the underlying disease.

Of the first variety, laryngitis is the representative; a mild form, characterised by slight injection of the larynx and increased cell proliferation, is fairly common in the second and third weeks of the disease. Landgraf ‡ has several times seen yellow patches in the larynx formed by colonies of staphylococcus pyogenes.

A more severe form may occur acutely during the third week of the fever or it may show itself in a chronic form during convalescence. During the first two weeks of typhoid there is often reason to suspect a catarrhal condition of the larynx from the patient's voice and the signs of catarrh of throat and chest, but it is usually not until the third week that the severe symptoms present themselves. These are hoarseness and feebleness of voice, dyspnœa (chiefly affecting inspiration, expiration being easy), pain and difficulty in swallowing. Laryngoscopic examination is naturally difficult in patients in the third or fourth week of typhoid fever, but, if practicable, swelling of the arytenoids and of the ary-epiglottic folds and some ulceration are the conditions most likely to be recognised.

Tracheotomy is generally necessary on account of the increasing

* 'Diseases of the Throat and Nose,' vol. i, p. 192.

† Morell Mackenzie, *op. cit.*, p. 193.

‡ 'Berliner klin. Woch.,' 1889, No. 14.

dyspnœa. Death may be due to a laryngeal ulcer spreading down into the connective tissue, and giving rise to subcutaneous emphysema. Fagge and Pye Smith mention cases of this sort recorded by Wilks and Ziemssen. There is an interesting case reported by Dr. Parsons,* in which the emphysema occurred after tracheotomy had been performed, death following about 14 hours later.

At the *post-mortem* examination œdema of the larynx, or purulent infiltration of the mucosa, together with more or less chondritis, are generally found.

The chronic variety most frequently occurs during convalescence, or it may not be noticed until recovery is apparently complete. The patient presents the usual signs of laryngeal stenosis; sudden death may be caused by œdema of the larynx or impaction of a portion of necrosed cartilage in the glottis. If the urgency of the dyspnœa necessitates tracheotomy, the canula has generally to be worn permanently, as destruction of the cartilage leads to collapse of the larynx.

Even if recovery takes place without tracheotomy, trouble in connection with the voice and the breathing may result from the cicatrization of the ulcerated parts. I have recently had under my care a man who suffered from typhoid fever with laryngeal complication in 1856. In this case the ventricular bands were thickened, the left vocal cord was immobile in the cadaveric position, and there was thickening about the crico-arytenoid joint; the outward movement of the right vocal cord was somewhat interfered with, but as the cord crossed the median line it came nearly in contact with its fellow, so that the voice, though feeble, was fairly clear; there was no dyspnœa except on great exertion. This was an example of how good a recovery may ensue even in a severe form of typhoid laryngeal mischief.

I now propose to describe another class of cases, to which the name of laryngo-typhoid has been applied, in which the poison of typhoid fever is at the onset focussed, as it were, upon the larynx, so that the symptoms of the local affection may, up to the end of the first week, so completely mask the underlying febrile state that it is not until the appearance of the eruption and other characteristic symptoms of typhoid fever that the diagnosis can be made with any degree of certainty. A typical case is one

* 'British Medical Journal,' Jan. 18th, 1896.

recorded by Gerhardt.* A man, aged 18, "has been subject to hoarseness and cough with the slightest colds. On December 24th, 1877, he was exposed to severe cold and wet. This was followed by severe chills, fever, pain in the throat, and cough with mucous expectoration. The voice was affected immediately; soon he became hoarse; when he entered the hospital he was completely aphonic. In swallowing there was severe, and on attempting to speak slight, pain in the throat. From the first he had headache, dizziness, and debility; soon after, also, hardness of hearing. On the 28th he took to his bed; the nights were restless and disturbed by dreams. On January 1st, 1878, several copious bleedings from the nose occurred; on the 2nd he entered the hospital with fully-developed symptoms of typhoid fever, particularly enlargement of the spleen and the characteristic roseolar eruption." The laryngoscopic examination revealed swelling and injection of the epiglottis with an extravasation of blood the size of a pin's head. The laryngeal mucous membrane generally was in a similar condition, and there were dark extravasations of blood over the vocal processes. The neighbouring lymphatic glands were swollen and tender. Ulcers eventually formed on the epiglottis and arytenoid cartilages. The fever ran a normal though severe course. The patient left the hospital on February 13th with a good voice, the ulcers were entirely cicatrised, and strength completely restored.

A series of five cases reported by Dr. Watson Williams† is important as pointing to the possibility of typhoid being communicated by the breath. This method of communication is of course most likely to occur in cases of laryngo-typhoid, hence special prophylactic precautions should be taken in these cases. Patients with any previous tendency to laryngeal affections seem to be more vulnerable to this form of typhoid fever than others; this was the case in Gerhardt's patient and also in Watson Williams's first patient.

Shortly after writing the above a man, aged 45 years, was admitted under my care into the Westminster Hospital from the throat department. On admission his temperature was 99·4° and rose the same evening to 103°; the nasal mucous membrane was dry and covered with crusts; the vocal cords were much congested, thickened, and irregular, and covered with inspissated mucus.

* 'Archives of Laryngology,' vol. i, p. 121.

† 'British Medical Journal,' 1894, vol. ii, p. 1353.

The patient had a cough, was very hoarse, and appeared much more ill than the local condition would account for. In the course of a few days I came to the conclusion that I had to deal with a case of laryngo-typhoid, and the subsequent course of the disease verified my diagnosis.

Œdema of the larynx may occur as a result of any of the laryngeal complications of typhoid fever; it has been the cause of death in a case of ambulatory typhoid fever without any previous symptoms of throat mischief.*

Paralysis of the vocal cords is occasionally seen as the result of enteric fever. Lublinski † for example has seen five cases, four in men and one in a woman, all occurring between the ages of 27 and 39 years. In one case there was bilateral abductor paralysis, in three paralysis of one recurrent nerve, and in one paralysis of both recurrent nerves. The paralysis may be due to pressure on the recurrent nerve by enlarged glands or thickened pleura; or, inasmuch as it is sometimes accompanied by paraplegia or paralysis of peripheral nerves, we must assume the existence of an anterior polio-myelitis, or a peripheral neuritis due to toxins.

The symptoms usually show themselves during defervescence. Of the five cases recorded by Lublinski, one case, that of bilateral recurrent paralysis, died three days after the onset of the paralysis. In the case of bilateral posticus paralysis tracheotomy had to be performed. The diagnosis in these cases is only to be made by means of the laryngeal mirror, and care must be taken to exclude cases of fixation of the vocal cord due to anchylosis of the crico-arytenoid joint. The most recent account of the pathology of the laryngeal complications of typhoid fever is that contained in the paper written by Dr. Kanthack and Dr. Drysdale and the discussion thereon at the Laryngological Society of London on February 12th, 1896. The paper was based on the *post-mortem* records of 61 cases. In 14 there was loss of substance in the larynx; in eight it was stated in the *post-mortem* books that the larynx had not been examined; so that assuming that the larynx had been examined in all the remaining 53 cases, which is doubtful, ulceration was found in 26 per cent. of the fatal cases. This represents a great advance in numbers affected compared with

* 'Centralblatt für Laryngologie,' vol. xi, p. 34.

† *Ibid.*, vol. xii, p. 136.

Hoffmann's figures, as quoted by Fagge and Pye Smith ;* he gives only 28 cases of ulceration in 250 necropsies, *i.e.*, a percentage of 11 as against 26. One explanation is that the larynx of late years has been more carefully investigated than formerly, and another is that Dr. Kanthack and Dr. Drysdale included slight losses of substance in their list, whereas Hoffmann only reported cases of distinct ulceration.

According to Kanthack and Drysdale the ulceration is most frequently seen over the tips and edges of the epiglottis and in the neighbourhood of the processus vocalis.

Various explanations have been given as to the pathological nature of these lesions. Dittrich assumed that they were of decubital origin; the evidence on this point is conflicting. Rokitanski pronounced in favour of the typhogenetic nature of the ulceration, but clinical evidence and the results of recent bacteriological examination tell rather against this theory.

I am myself inclined to agree with Dr. Kanthack and Dr. Drysdale in their summing up of the question :—"The evidence in their possession convinces them that these laryngeal ulcers occurring during the course of typhoid fever are caused by fresh infections with pyogenic organisms which always abound in the larynx and which gain a firm foothold on the debilitated tissues, although they cannot deny that in an individual case the typhoid bacillus may have escaped and caused the lesion."

Dr. Jobson Horne made an important remark during the discussion to the effect that in some of the larynges of persons dying from typhoid fever the ulceration had been proved by microscopical examination to be of a tubercular nature. From this he deduced two conclusions—(1) That typhoid may be a possible factor in the ætiology of tubercular ulceration of the larynx, and (2) that the tubercular diathesis may be a factor in the ætiology of typhoid ulceration of the larynx.

One of the most characteristic features of the typhoid affection of the larynx is the tendency to suppuration about the cartilages leading to their necrosis and extrusion and the tendency to destructive changes in and about the crico-arytenoid joints, so that if the patient recovers he does so with an immobile joint and, consequently, fixed cord.

* 'Principles and Practice of Medicine,' 3rd edition, vol. i, p. 158.

Lacoarret,* in an excellent article on arthritis of the crico-arytenoid joint, has collected many examples of this condition occurring as a result of enteric fever.

### Erysipelas.

In the production of facial erysipelas chronic nasal affections play an important *rôle*, hence the frequency with which erysipelas starts from the centre of the face, the orifice of the nostril being a favourable point of departure. A large amount of literature has accumulated on the subject of erysipelas of the pharynx and larynx, but our ideas on this subject have been clarified since we recognised the streptococcus erysipelatis as the cause of erysipelas. If, as seems likely to be the case, the streptococcus pyogenes, the cause of various septic affections such as phlegmonous erysipelas, is proved to be identical with the streptococcus erysipelatis, the whole subject of erysipelas of the throat will be much simplified. I am strongly in favour of the view propounded by Dr. Semon, that erysipelas, phlegmonous pharyngitis, angina Ludovici, and similar conditions are only modifications of the same process, differing in their virulence or place of development. I have discussed the subject of erysipelas of the pharynx and larynx in a paper presented at the Meeting of the British Medical Association in 1891,† so that it is unnecessary for me to say more on the subject on the present occasion.

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## LECTURE II.

### Mycosis Fungoides.

On April 10th, 1895, I showed, at the Laryngological Society of London, a man, aged 52, suffering from mycosis fungoides. In addition to numerous tumours all over the body and limbs, tumours were seen on the posterior and lateral walls of the pharynx and on the left arytenoid cartilage. The patient had complained of more or less sore throat for 18 months, but the speech was not

* 'Revue de Laryngologie, d'Otologie et de Rhinologie,' 1891, p. 399.

† 'British Medical Journal,' 1892, vol. i, p. 434.

affected. This is, I believe, the first case in which the larynx has been recognised as having been attacked by mycosis fungoides.*

## Rheumatism.

Rheumatic affections of the nose have received but little attention. I cannot say that I have seen any cases in which I could assure myself that rheumatism was the cause of symptoms referred to the nose, with the possible exception of a few cases in which patients complained of pain at the point of emergence of the nasal branches of the superior maxillary nerve, and even in these cases the rheumatic origin of the neuritis is problematical. Freudenthal,† however, states that "a number of cases have come under his observation in which the symptoms of nasal rheumatism were distinct and unmistakable. Two varieties of the disease were noted—one with visible changes in the nose, and the other without such changes. The changes consisted of a swelling of the lower and middle turbinated bodies, which obstructed the breathing, and which could not be reduced with even strong solutions of cocaine. In all the cases the pain in the nose was very severe, and all were associated with attacks of articular rheumatism affecting various joints in the body. In all of the cases, too, anti-rheumatic treatment was the only one which had any effect on the nasal symptoms." The epistaxis which we occasionally see during the course of acute rheumatism is almost invariably due to the salicylate of sodium now so generally employed; at all events, I can find no reference to epistaxis among the symptoms of acute rheumatism in the pre-salicylate days. One of the first to draw attention to this action of the salicylates was Dr. Greenhow,‡ who in May, 1880, read a paper before the Clinical Society upon cases of rheumatic fever treated by the then comparatively new drug. "Epistaxis occurred in seven cases—in some of them repeatedly—and in more than one of them after ceasing when the medicine was intermitted, it returned again when it was resumed." Dr. L. Shaw§ has also called attention to the occurrence of hæmorrhages, par-

* 'Proceedings of the Laryngological Society of London,' vol. ii, p. 70. 'Transactions of the Clinical Society,' vol. xxviii, p. 268.

† 'Journal of Laryngology,' 1895, p. 179.

‡ 'Transactions of the Clinical Society,' vol. xiii, pp. 262, 343.

§ 'Guy's Hospital Reports,' vol. xliv, p. 125.

ticularly of epistaxis, in patients undergoing salicylic treatment. That the salicyl element is the one at fault is shown by the fact that hæmorrhages occur with salicine as well as the salicylates. Dr. Greenhow's experience of epistaxis in acute rheumatism treated by sodium salicylate seems to have been somewhat unusual, as it occurred seven times out of 50 cases. Possibly the lessened frequency of its occurrence at the present time is due to the greater purity of the drug now used. Epistaxis occurring under these circumstances requires no special treatment, omission of the medicine is usually followed by cessation of the hæmorrhage. In the naso-pharynx the only condition which seems at all dependent on rheumatism is lacunar inflammation of the third or pharyngeal tonsil. I have seen several cases where this tonsil has been affected independently of the faucial tonsils, and the pain and suffering the patient has experienced have been greater than is usual in ordinary tonsillitis. I believe that in some of the cases the rheumatic poison is the cause of the complaint. In two cases it was clearly of influenzal origin. Before the days of rhinoscopy I should have been at a loss to explain the cause of the severe headache, pain referred to the back of the nose, and fever met with in these cases, but a glance in the rhinoscopic mirror shows irregular swelling of the tonsil, which is dotted over with yellowish spots.

Pharyngitis is a very common complication of acute rheumatism. It usually appears a day or two before the onset of the articular pain, but occasionally the throat is only complained of after the disease has fully declared itself. On examination the margin of the soft palate, the tonsils, and the posterior wall of the pharynx will be found of a deeper red colour than normal and somewhat swollen. Occasionally there is œdema of the mucous membrane, more especially of the uvula. Freudenthal * describes a benign ulceration of the pharynx, which he has only met with in persons affected with chronic rheumatism, and which promptly disappears under anti-rheumatic remedies. This I have not seen. In some cases the symptoms of rheumatic pharyngitis are so slight as not to be mentioned by the patient unless questioned on the subject. In the more severe forms the usual symptoms of dysphagia—pain in the ears and difficulty in speaking—are met with. The rheumatic origin of tonsillitis in many cases is now fully recognised. Lacunar

* 'Journal of Laryngology,' 1895, p. 179.

tonsillitis is the form which usually occurs in connection with rheumatism. It must be borne in mind that though cardiac lesions are seldom seen when sore throat is the chief feature of a rheumatic attack, still cases do occur in which endocarditis and pericarditis are met with even when articular pains are entirely absent. In the discussion on tonsillitis at the meeting of the British Medical Association in 1889, I described a typical example of this.*

According to Sir Willoughby Wade,† "tonsillitis is a primary infective disease of the lacunæ, rheumatic fever a secondary disease arising from the absorption of microbes or their products into the system." He adduces facts which point strongly to the conclusion that there is a special rheumatic bacillus, and further that this special bacillus may or may not be associated with those of tonsillitis. Suchannek‡ regards acute multiple articular rheumatism as an infectious disease which runs the course of an attenuated pyæmia. The infection starts in a large number of cases in Waldeyer's "pharyngeal ring," especially in the faucial tonsils. In the sore throat different kinds of bacteria are found, especially staphylococci alone or combined with streptococci. Their colonies penetrate from the mucous membrane into the deeper structures, fill up the lymph spaces, and pass into the circulation through erosions of the lymphatics and blood-vessels as a result of tissue necrosis. The occurrence of thrombosis is the cause of emboli and metastasis. If the micro-organisms are present in small numbers the tonsils may alone be affected; if, however, they are abundant, and there exists a predisposition to joint affections, either inherited or of neurotic origin, then the symptoms of acute articular rheumatism may develop. The outcome of the connection between the throat and the onset of rheumatic phenomena is the importance of preventing oral respiration and the removal of chronically hypertrophied tonsils. If tonsillitis occur it should be promptly treated with salicylates, in the hope of thereby warding off an attack of acute rheumatism.

In some cases the rheumatic poison affects the muscles of the pharynx, giving rise to attacks of pain in the pharynx, much aggravated by swallowing—there may be no objective signs. The rheumatic origin of these symptoms is shown by their occurring

* 'British Medical Journal,' 1889, vol. ii, p. 588.

† *Ibid.*, 1896, vol. i, p. 829.

‡ 'Centralblatt für Laryngologie,' vol. xii, p. 160.

in patients with rheumatic antecedents and by their yielding to salicylates. From its exposed condition, both externally and internally, and from the amount of fibrous tissue which enters into its structure, it might have been thought that the larynx would be especially subject to rheumatic affections. This, however, does not seem to be the case, and it is only comparatively recently that attention has been directed to the occurrence of a rheumatic laryngitis. Morell Mackenzie, for instance, whose text-book represents the high-water mark of knowledge of throat diseases extant at the time, though he mentions "rheumatic sore throat," says nothing about rheumatic affections of the larynx, except the remark that it is probable that anchylosis of the crico-arytenoid joint may be due to primary synovitis, either rheumatic, gouty, or simply catarrhal. I have no doubt in my own mind, however, that in the past many cases of the kind have been misinterpreted; indeed, on looking back through my case book I have found cases which I should now class among rheumatic affections of the larynx, but which formerly I did not recognise as such. For instance, I have noticed in patients subject to other rheumatic manifestations swelling of one or both ary-epiglottic folds, accompanied with considerable pain in swallowing and some external tenderness, which have speedily yielded to an anti-rheumatic treatment. If the case proceeds a little further the crico-arytenoid joint becomes involved, and we get a condition of affairs such as Hirsch has described in a case I shall mention later on. The form of sore throat described by Hinkel * is clearly an allied condition. The patient complains of sudden pain on swallowing, and there is slight elevation of temperature. The most painful spot is seated just behind the cricoid cartilage, or outside the superior cornu of the thyroid, or in the posterior wall of the pharynx. The mucous membrane is congested in a patchy way. In some cases a severe cough, of a dry and painful character, is met with. Freudenthal † takes even a wider view of the case, and says that in predisposed persons the rheumatic laryngitis may be for weeks or months the only symptom of rheumatism, and it is probably for this reason that the correct diagnosis is not made.

There is one class of affection of the throat in which, though the evidence of connection with rheumatism is somewhat weak, I

* 'Centralblatt für Laryngologie,' vol. vi, p. 149.

† 'Journal of Laryngology,' 1895, p. 179.

nevertheless think that rheumatism plays an important *rôle*; I refer to cases of fixation of a vocal cord from anchylosis of the crico-arytenoid joint. In my book on 'Diseases of the Nose and Throat'* I recorded two cases which came under my observation. It would perhaps be more correct to place these cases in the class of arthritis *à frigore*, but the line of demarcation between an arthritis arising from exposure to cold and that due to rheumatism is a very narrow one. In the first case the patient was a music-hall singer, who while staying at the seaside went out rowing late at night and commenced singing. Next morning he had pain in the right side of the throat, with the loss of voice. When I saw him two or three weeks later, the right vocal cord was in the cadaveric position and there was swelling at the base of the arytenoid cartilage. The second case occurred in the person of a medical man about 40, who, while recently convalescent from influenza, went out for a ride on a windy day, and had to raise his voice to make himself heard. On his return home he was hoarse, and had all the symptoms of an acute laryngitis. I saw him some months after the onset; the right arytenoid was somewhat swollen and the vocal cord was fixed in the cadaveric position. As Freudenthal points out, if articular rheumatism of the larynx is associated with rheumatic affections of other parts of the body the diagnosis is easy, but if, as in the cases recorded above, the larynx alone is affected, it is extremely difficult to say positively that the affection is really of rheumatic origin. In rheumatism of the crico-arytenoid joint the patient complains of an uncomfortable sensation at the angle of the jaw, usually relieved by pressure, which frequently elicits crepitus; the pain is increased by swallowing. Swelling round about the joint may or may not be present. Swallowing is generally easy at first, but dysphagia comes on later. The cord usually becomes fixed in the cadaveric position. Dr. A. E. Garrod† quotes three cases. The first is one related by Schützenberger. The patient, a young woman, died in the course of an attack of rheumatic fever from pericarditis and œdema of the lungs, and the left crico-arytenoid joint was found to contain an excess of fluid. The two other cases are recorded by Hirsch, whose first patient was a young man, aged 20, who during an attack of acute rheumatism

* P. 361.

† 'A Treatise on Rheumatism,' p. 82.

complained of pain on the right side of the larynx, which was increased by deglutition; the voice was hoarse. On laryngoscopic examination much redness and swelling over the right arytenoid cartilage, extending to the ary-epiglottic fold, was seen. The movements of the right cord were impaired. Within a week the laryngeal signs and symptoms had quite disappeared. In Hirsch's second case the symptoms and laryngoscopic appearances were very similar, but both sides of the larynx were involved. Archambault* in his 'Thesis' quotes a case of Desbrousses'. A patient, who had had several local manifestations of rheumatism, was attacked on the fourth day with dyspnœa and loss of voice. Nothing was seen at the back of the mouth or pharynx. The patient died, and at the necropsy the arytenoid cartilages on both sides were found bare, but not necrosed. In the left articulation a reddish serous effusion was seen. A case recorded by Sendziak† is a typical example of this condition. The crico-arytenoid articulations were first affected, causing pain, dysphagia, aphonia, high fever, and prostration, followed by affections of the larger joints. I believe that many of the cases of fixation of a vocal cord of doubtful origin—and every laryngologist has met with these cases—are probably due to rheumatic arthritis, and that, though the prognosis as regards life is good, the voice will always be somewhat impaired, but even in this respect it is sometimes astonishing how good and strong a voice can be produced in spite of the fixation of one vocal cord, owing to the fact that the unaffected cord takes on compensatory action, crosses the middle line, and comes into almost complete contact with the motionless cord. Dr. E. F. Ingals,‡ of Chicago, believes that laryngeal rheumatism is often mistaken for neuralgia. He finds it occur most frequently in men, and most commonly during spring and autumn. Nearly all subjects are of the rheumatic diathesis; the pains come and go in the manner characteristic of rheumatic affections, and they are benefited only by those remedies and surroundings which have proved most useful in rheumatism. A case recorded by Dr. Max Thorner§ under the head of "chronic rheumatic laryngitis and pharyn-

* 'Inaugural Thesis,' Paris, 1886.

† 'Journal of Laryngology,' vol. x, p. 347.

‡ 'Sajous's Annual of the Universal Medical Sciences,' 1889, vol. iv, G. 4.

§ 'Cincinnati Medical Journal,' March, 1893.

gitis," corresponds to the description given by Ingals, and I have had somewhat similar experience; the rheumatic origin of these cases is, however, rather doubtful. Before leaving the subject of rheumatic laryngitis I should like to add that cases of affection of the crico-arytenoid joint from gonorrhœal rheumatism have been recorded. Even if there were no cases reported we might reasonably expect that they had occurred, but had been overlooked, as we know that gonorrhœal rheumatism may affect any joint. Mr. Broadhurst* has recorded a case in which there was anchylosis of every joint in succession, and it would therefore be very curious if the crico-arytenoid joint alone escaped. Dr. Lacoarret† in his very interesting paper on acute arthritis of the crico-arytenoid joint gives two cases which deserve to be quoted in full.

Case 1. *Reported by Libermann.*—X., 26 years of age, a soldier, who had only had some trivial maladies, was in the course of 1872 attacked with some rheumatic pains. On April 28th, 1873, he contracted gonorrhœa; on May 15th, sudden suppression of the discharge; immediately afterwards pains in the joints of the shoulder and knee without articular swelling. At the end of three or four days violent pain in the laryngeal region accompanied by complete aphonia. The articular pains have ceased since the appearance of the aphonia. Violent pains in the left laryngeal region coming on spontaneously as well as on pressure. On laryngoscopical examination a considerable swelling of the left arytenoid cartilage is seen, especially at the articular part which exhibits quite a considerable globular enlargement, over which on passing a laryngeal sound the sensation of fluctuation is clearly enough perceived. The mucous membrane covering the arytenoid is red, but the redness does not pass beyond the cartilage; the adjacent parts are quite healthy. The left vocal cord is narrower than its fellow, and does not approach the middle line. When the patient pronounces the vowel "a," it remains immobile. Examination of the chest does not reveal any pulmonary lesion. He has never had a syphilitic affection. In the presence of these lesions and on account of the order of succession of the symptoms, I believe that I can diagnose a gonorrhœal arthritis of the crico-arytenoid articulation. Blisters over the laryngeal region, iodized opium painting over the articulation. After some days the pains disappeared, the voice returned little by little, and the patient left cured on June 30th. The laryngoscopic examination made at this time gives the following result:—The left arytenoid cartilage and the crico-arytenoid articulation have returned to their normal state, but the left cord has not completely regained its size (slight atrophy of the cord), and it does not quite approach its fellow; the voice is nearly normal.

Case 2. *Reported by Mr. K. Simpson.*—S. H., a bachelor, manufacturer of cigarettes, consulted me for the first time on February 23rd, 1888. He had had three attacks of gonorrhœa; the last occurred five weeks before.

* 'Reynolds's System of Medicine,' vol. i, p. 961.

† 'Revue de Laryngologie, d'Otologie et de Rhinologie, 1891, p. 397.

He has complained of pain and stiffness in the left knee for the last three weeks; similar phenomena showed themselves in the right knee, then in the left hip. The left thumb became equally painful and tumefied, the swelling extended over the anterior part of the wrist and over the back of the hand, and at this time these regions presented the typical appearance of an acute rheumatic inflammation. The throat symptoms had commenced three days before in the morning with pain on deglutition. The day following there was a little swelling over the lower part of the larynx externally. This swelling had now nearly disappeared. Pain on pressure over the right side of the larynx. In the evening the patient commenced to be hoarse and the pain on pressure became very violent. Dysphagia, then complete aphonia; no cough. The two arytenoids were red and tumefied, the right rather less than the left; appearance of tubercular laryngitis. The right cord was immobile during phonation. The remainder of the laryngeal mucous membrane was hyperæmic, the left cord a little injected, the right swollen and red. The treatment consisted in the internal administration of salicylate of sodium. From February 23rd to the 28th there was no amelioration in the throat symptoms, the swelling had increased and the respiration remained embarrassed. Starting from the 28th, and after the application of a blister over the right side of the larynx and after the administration of iodide of potassium, a notable amelioration took place. Improvement continued, and on March 6th the œdema had completely disappeared. The voice had returned fairly well, but the right crico-arytenoid articulation and the vocal cord remained red and only executed feeble movements.

Of these two patients, the first case, that reported by Libermann, was certainly a rheumatic subject, and the second, Simpson's case, presented other articular lesions. The arthritic diathesis of the one and the multiple attacks in the two cases do not allow us to affirm that we had to deal with an infectious arthritis and not with true rheumatic pains coinciding with the gonorrhœa. At the most the failure of the salicylate treatment in the second patient would suggest that we had before us a real gonorrhœal arthritis.

In connection with impairment of movement of vocal cords comes the question of rheumatism of the laryngeal muscles. I am not myself a believer in the rheumatic origin of muscular affections generally; I am of opinion that they are more often due to a gouty tendency. I cannot, therefore, give in my adhesion to the view that the muscles of the larynx may be affected with rheumatism and give rise to impaired movement of the vocal cord, and I agree with Dr. Semon when he says that, "I believe the less in rheumatic paralysis the greater my experience becomes." Larauza,* however, records a case of hyperæmia of the laryngeal mucous membrane with loss of tension in the vocal cords with

* 'Revue de Laryngologie, &c.,' 1889, p. 203.

aphonia in a patient, the son of arthritic parents, but who had not himself suffered from articular rheumatism. On the very insufficient ground of a rheumatic family history, and the speedy improvement under the administration of sodium salicylate after other methods had failed, Larauza diagnosed rhematism of the intrinsic muscles of the larynx. I have not seen any cases which could not be explained on other than a rheumatic theory.

## Gout.

I have but little to say in reference to gouty conditions of the nose. Tophi are sometimes found in the skin of the nose; at the time of writing this I have a patient in the Westminster Hospital with a large tophus in the skin of the nose. Sir Dyce Duckworth* states that "painful follicular inflammations in the alæ of the nose have been noted with some frequency in the gouty. These do not suppurate, but are apt to recur again and again." If epistaxis occurs it is usually as a result of changes associated with chronic interstitial nephritis (the gouty kidney), rather than directly due to any gouty condition. In a letter to me on the subject, Sir Dyce Duckworth confirms an opinion which I have long held that "some nasal catarrhs are gouty, sudden, and sometimes fugitive." There is much to be said in favour of the view that in some cases of hay fever there is an underlying gouty tendency, or, as Haig would say, a condition of uricacidæmia. I have not, however, found hay fever alternating with or replacing an attack of gout. Sir Dyce Duckworth quotes Noël Gueneau de Mussy as being of opinion that cases of hay fever were especially frequent in members of gouty families, and as regarding the changes in the mucous membrane of the nasal passages as akin to the eruptions which vex the skin of gouty subjects. I have found that a simple unstimulating diet, only a moderate amount of animal food and no alcohol, suits the victims of hay fever the best. Whilst on the subject of hay fever and paroxysmal sneezing in the gouty, I will take the opportunity of emphasizing the importance of a thorough investigation of the patient's general condition before any local treatment is carried out in the nose for these affections. A careful inquiry should be made as to the state of the various functions of the

* 'A Treatise on Gout,' p. 90.

body, especial attention being directed to the condition of the liver and kidneys; the possibility of malarial infection should also be considered. Having done this I would go a step further, and if in spite of general treatment the sneezing or attacks of hay fever persist, I would most certainly carry out local treatment in the nose. Of the methods of local treatment I have found none so efficacious as the use of the galvano-cautery. Given a puffy, spongy condition of the mucous membrane of the turbinated bones, with more or less occlusion of the passages, the application of the galvano-cautery has in my experience been followed by great benefit; it involves little or no risk of any sort, and, thanks to cocaine, can be carried out in a perfectly painless manner. Only in exceptional cases is a more severe local treatment necessary, but should there be deflection of the septum partially blocking one nostril, it may be necessary to forcibly straighten it, and thus restore free nasal respiration. Removal of the turbinated bones is hardly ever justifiable. I have entered somewhat fully into this question of local surgical treatment of nasal neuroses, as Dr. Goodhart* has, in my opinion, taken up too strong a position when he says "we should remember, in making use of severe measures of this kind, that we are only treating a symptom and, from the nature of the case, adopting a means that is very unlikely to prove of any permanent good." While agreeing with him that "means of this kind are too often meddlesome and bad surgery," I have had so many patients under my care who have derived permanent benefit from the galvano-caustic plan of treatment that I feel it my duty to protest against indiscriminate blame being attached to it, as well as against its unjustifiable abuse. In this, as in most worldly matters, "*In medio tutissimus ibis*" is the motto to follow.

Though gouty affections of the nose are comparatively rare, the pharynx is frequently the seat of trouble in the gouty, chiefly of a chronic nature, anything like acute gout of the throat being excessively rare. Morell Mackenzie† mentions the case of a patient who was "suffering from acute pharyngitis, when the symptoms suddenly disappeared and an acute attack of gout developed in the great toe of the right foot; after three days the gouty inflammation of the toe disappeared, and acute hyperæmia

* 'Harveian Lectures on Common Neuroses,' p. 48.

† 'Diseases of the Throat and Nose,' vol. i, p. 48.

of the pharynx supervened." He also mentions a case of acute œdema of the uvula disappearing upon sudden development of gouty inflammation of the big toe.* M. Vaton † was called to a patient suffering from an urgent attack of dyspnœa with enormous œdematous swelling of the uvula, soft palate, and fauces. The patient was the subject of gravel with articular deformities and tophi, and had had gouty attacks previously. The diagnosis of gouty angina was accordingly made, and the patient was ordered gargles of chlorate of potassium, sinapisms, and a free supply of Vichy water. As suffocation persisted, the uvula was scarified and leeches were applied to it. The swelling suddenly disappeared some days after, simultaneously with the big toe being attacked with severe gout. I have not myself seen anything similar to the above, *i.e.*, acute mischief in the throat being replaced by acute gout, and this in its turn giving way to a return of the throat mischief; on the other hand, I have had a good number of gouty patients who have had marked throat symptoms which seemed to me to be dependent on their general gouty condition. The appearance of the gouty throat is characteristic, the soft palate, the fauces, and the posterior wall of the pharynx present a gorged, congested appearance; the uvula is generally enlarged, and sometimes of an enormous size. The colour of the mucous membrane is purplish-red, and has a somewhat glistening appearance. As regards symptoms, patients complain of all degrees of discomfort, from slight difficulty and pain in swallowing to sharp pain radiating up to the ear, with excessive pain on swallowing. In some cases the patients complain of pain limited to certain areas, or they have the sensation of tickling, or of a foreign body in the throat. These symptoms are especially met with in the lithæmic; *i.e.*, in people with defective liver action, but who have not as yet shown any overt manifestations of gout.

I am of opinion that quinsy is sometimes a manifestation of the gouty diathesis, and occurs in the children of gouty parents more frequently than in others. In the past the diagnosis of gout has undoubtedly been the refuge of the destitute, and I do not think that we are justified in describing an affection of the throat as being gouty, unless the sufferer has had some other distinct

* 'Journal of Laryngology,' vol. iii, p. 313.

† 'Revue de Laryngologie,' 1891, p. 148.

evidence of gout. The gouty nature of the complaint is still further assured if it quickly yields to colchicum and alkalies, when other remedies have failed. In connection with gouty pharyngitis it is not uncommon to find the larynx also affected. The cords are congested, and the mucous membrane of the larynx has sometimes a dusky colouration. The patient complains of pain through the larynx, and there may be some external tenderness. There is usually hoarseness, with a frequent hacking cough; and a little viscid expectoration, sometimes streaked with blood, is brought up with difficulty. Sir Thomas Watson in his classical lectures writes:—"A year or two ago an eminent physician of my acquaintance suffered a violent and dangerous attack of what was considered to be gout in the throat." It is extremely difficult to recognise what was included under the term of "gout in the throat" in the pre-laryngoscopic days, but it is quite certain that nowadays we do not see gout attacking the larynx and threatening life. The only two cases of a definite gouty affection of the larynx which Morell Mackenzie* records are:—1. Gouty deposit around the crico-arytenoid joints on both sides, causing permanent dysphonia; deposit in lobule of left ear. 2. Gouty inflammation producing fungous ulceration of the left ventricular band, resembling cancer; cured by a course at Wiesbaden. Sir Alfred Garrod† writes:—"In one instance only have I seen what appeared to me to be a true gouty disease of the larynx." Inasmuch, however, as no laryngoscopic or *post-mortem* examination was made, the case is not conclusive. In my experience, gout as it affects the larynx has been in the form of catarrh, more or less chronic, but yielding to alkalies and iodide of potassium. Careful pathological investigation bears out the comparative rarity of gouty changes in the larynx. Dr. Norman Moore‡ has noted the *post-mortem* appearances in 80 cases of gout, and as one of his conclusions states that "the articulations of the larynx rarely contain deposit," *i.e.*, of urate of sodium. On analysing these 80 cases, it will be found that in 57 cases the larynx was normal (except one case where there was tubercular ulceration), in 16 cases the condition of the larynx is not distinctly indicated, and in only seven were there any noteworthy changes.

* 'Journal of Laryngology,' vol. iii, p. 313.

† 'A Treatise on Gout and Rheumatic Gout,' 3rd edition, p. 452.

‡ 'St. Bartholomew's Hospital Reports,' vol. xxiii, p. 289.

In four calcification of the cartilages is mentioned as being present, and in three others gritty deposits, small thickening of white colour, and œdema of the larynx respectively were noted. In no case was urate of sodium noted as being present. In the report of a case in the 'Pathological Society's Transactions,' Dr. Moore,* however, mentions the occurrence of a small deposit looking like urate of soda just below the outer end of each cord. In one case Sir Alfred Garrod† met with some points of deposit on the arytenoid cartilages which were proved to consist of urate of soda, both from their microscopical and chemical characters; and Duckworth ‡ states that Virchow has detected "a tophulus" in the posterior part of the right vocal cord. Uratic deposits have been found in the crico-arytenoid ligaments. Ewart§ quotes cases observed by Litten and Brooks of uratic deposits in the larynx.

### Osteo-arthritis: Rheumatoid Arthritis.

Osteo-arthritis affecting the crico-arytenoid joint has, up to the present time, received but scant attention. Sir Alfred Garrod|| is inclined to attribute the aphonia, which he has observed in several cases, to implication of the arytenoid cartilages in the disease, but this view has not been confirmed by laryngoscopic or *post-mortem* observations. Bearing in mind how generalised the joint lesions of this disease are, I cannot but think that cases in which the crico-arytenoid joint is implicated, occur fairly frequently but pass unrecognised, for I can see no reason why this joint should be exempt from the ravages of osteo-arthritis, more especially as a neighbouring joint—the temporo-maxillary articulation—is often attacked. Now that the laryngoscope is so commonly employed, we may expect to hear of osteo-arthritic affections of the crico-arytenoid joint.

Dr. W. E. Casselberry,¶ of Chicago, has recorded the case of a woman, 58 years of age, who suffered from laryngeal dyspnœa, marked inspiratory stridor, and a slight degree of laryngitis. The vocal cords could not be abducted on account of anchylosis of the

* Vol. xxxiii, p. 273.
† *Op. cit.*, p. 205.
‡ 'A Treatise on Gout,' p. 85.
§ 'Gout and Goutiness,' p. 208.
|| 'Gout and Rheumatic Gout,' 3rd edition, p. 519.
¶ 'Centralblatt für Laryngologie,' vol. xi, p. 255.

arytenoid joints; the patient suffered from general rheumatoid arthritis of the joints of the hand and foot, as well as of the larger joints of the body. The attacks of laryngeal dyspnœa always terminated spontaneously, and they corresponded in point of time to the exacerbations of the constitutional affection. During the attack itself, local treatment was necessary in order to keep the larynx free from secretion; without this it would hardly have been possible to avoid tracheotomy. Treatment directed against rheumatism and against gout was carried out for a long time without result. It would seem, therefore, that in this case we had to do with osteo-arthritis of the crico-arytenoid joint.

### Leukæmia.

Several cases of laryngeal stenosis due to leukæmia have been reported.* In a case of Ebstein's, the arytenoids and ventricular bands were infiltrated. Three months after the first observation the swelling had increased and had extended to the supra-glottic region, the surface being covered with a yellowish secretion. Owing to an increase in the amount of stenosis, tracheotomy was required. Death occurred five days later. In another case the laryngoscopic appearance was that of a tubercular infiltration, and the stenosis was chiefly due to swelling of the subcordal mucous membrane extending posteriorly to the sixth tracheal ring. Mager records the case of a patient, 58 years of age, who, after having suffered from leukæmia for a year, became dyspnœic. On laryngoscopic examination the mucous membrane of the larynx was red and swollen; the swelling appeared to be due to a hard infiltration, the vocal cords were swollen, and there was immobility of the right half of the larynx. Death followed tracheotomy in a few days. In this case, at the *post-mortem* examination, in addition to the usual sub-epithelial infiltration by leucocytes, there was perichondritis and necrosis of the right arytenoid cartilage.

Leukæmic infiltration of the larynx represents a grave complication, it usually requires tracheotomy and is a precursor of the fatal issue.

### Hodgkin's Disease.

In Hodgkin's disease running an acute course œdema of the pharynx, especially of the arches of the palate and the uvula

* 'Journal of Laryngology,' vol. xi, pp. 233, 237, 272.

coming on in successive attacks, has been observed.* The swelling is probably due to leukæmic infiltration and the administration of arsenic has good effect. In a chronic case of Hodgkin's disease, an œdematous granular appearance of the uvula and the anterior palatine arch, which felt hard, was noticed. A similar condition has been seen in the larynx. A child, 2 years old, had attacks of suffocation and died, notwithstanding the performance of tracheotomy. At the *post-mortem*, there existed a general swelling of the lymphatic system, with especial localisation in the ventricular bands and the epiglottis. The swelling of the laryngeal mucous membrane was pale and slightly knobby, caused by accumulation of leucocytes in the sub-epithelial tissues.†

### Lymphatic System.

Owing to the universality of its distribution, the lymphatic system necessarily plays an important part in all diseased processes. As Moritz Schmidt has pointed out, in a considerable number of cases of recurrent posticus paralysis the cause is quite obscure during life. A likely hypothesis in these cases is that the paralysis has been produced by a swollen mediastinal or cervical gland. I have had the opportunity of watching such a case for the last 10 years, and though I had always assumed, in the absence of any other recognisable condition, that the paralysis was due to the pressure of enlarged mediastinal glands, it is only within the last few months that the cervical glands have become enlarged, and lend support to my original diagnosis.

### Hæmoptysis.

There is hardly any symptom which gives rise to more anxiety, both to the patient and his medical attendant, than hæmoptysis. The rule still holds good that blood which is coughed up should be regarded as coming from the lungs, until there is distinct evidence to the contrary. A simple explanation of some cases of blood spitting occurring in the early morning is forthcoming, viz., that it may be due to decayed teeth. Patients suck their gums, and if the gums are inflamed the blood drawn from them during

* 'Centralblatt für Laryngologie,' vol. xii, p. 559.

† *Ibid.*, p. 499.

sleep passes into the throat to be coughed up on waking. Numerous cases are now on record in which a varicose ulcer on the posterior border of the septum, small ulcers and vascular ruptures in hypertrophied tonsils, enlarged vessels in the pharynx, a varicose condition of the veins at the base of the tongue, dilated vessels or ulceration of the larynx have given rise to the suspicion of hæmoptysis, and the diagnosis has only been arrived at by the employment of the rhinoscope or the laryngoscope, as the case may be. I could not wish to cite a better illustration of the use of these instruments in general medicine. Among the comparatively rare causes of hæmoptysis may be mentioned the presence of a leech in the larynx.* A dry laryngitis, in which crusts form on the vocal cords, may give rise to quite a severe hæmorrhage when they become detached, and this, together with the concomitant cough and hoarseness, may, in the absence of a thorough examination, lead to an erroneous diagnosis of phthisis. I have had under observation during the past year a middle-aged lady with the physical signs of a small quiescent cavity in the apex of the right lung, who came to me with the history of having spat blood daily for over a year. There was no rise of temperature and the patient had gained in weight. Examination of the sputa on two occasions showed the absence of tubercle bacilli. I thought that I had discovered the source of the hæmoptysis when I detected bleeding from a vascular point on the septum. The epistaxis I readily stopped by applying the galvano-cautery to the bleeding point; but, alas, the hæmoptysis continued, and though I carefully examined the pharynx and larynx, I failed to find the origin of the hæmorrhage; I am confident, however, that it came from the upper air passages and not from the lungs.

## Bronchitis.

The intimate connection between the nasal passages and the bronchial tubes has for a long time been common property. There are certain persons who say that whenever they get a cold in the head it is sure to travel downwards and set up bronchitis. This tendency is, however, much greater in those who suffer from stenosis of the nasal passages interfering with proper nasal respiration. This is one argument I employ when I

* 'Revue de Laryngologie,' 1890, p. 81.

think it necessary to advise that hypertrophic rhinitis, crests on the septum, and deflected septa should be surgically treated. I point out that though in early adult life the nasal condition may only be an inconvenience, still, with advancing years and the tendency to bronchial affections which comes with increasing age, any interference with free nasal breathing greatly aggravates the risk of being attacked by bronchitis. Oral respiration is always attended sooner or later by chronic pharyngitis and laryngitis, and a little additional upset of the system will start off bronchitis, which, under these circumstances, is extremely likely to become chronic. Even slight nasal affections, not sufficient to interfere with breathing, may be a predisposing cause to bronchitis. Thus Cahn* records a case of bronchitis coming on in an acute manner in a patient with small nasal polypi, and the bronchitis lasted until they were cleared out. Cahn specially notes that there was free nasal breathing.

### Asthma.

One of the earliest reflex conditions which was recognised as being dependent in some cases upon intra-nasal disease is asthma, and though I cannot agree with some authorities that asthma is usually associated with intra-nasal diseases, still cases of this sort occur with sufficient frequency to render it absolutely necessary for the physician to examine the nose in all cases of asthma. Numerous cases have now been recorded of asthma occurring in persons suffering from nasal polypi, in which the removal of these growths has completely freed the patient from the attacks of asthma. It has not, however, been my fortune to meet with absolute success, that is to say, that in all the cases of asthma complicated with polypi which have come under my care, in no single instance have I succeeded in curing the patient by removing the polypi. No matter how thoroughly the nose has been freed from the growths, the patient has still suffered from the attacks of asthma, though the effect of the treatment has been greatly to diminish the attacks in frequency and severity. Unfortunately, as a rule, patients do not come for treatment of the nasal disease until the asthma has lasted for a considerable period—possibly years, and by this time changes have been set up in the central

* 'Centralblatt für Laryngologie,' vol. xii, p. 424.

nervous system and in the lungs which are incompatible with complete restoration to health. In this connection the following case is of much interest:—Mr. C. W., aged 38 years, consulted me in April, 1893, on account of asthma, from which he had suffered for about six or seven years. At the commencement of the asthma he had some sneezing. On examining the nose I found a spur on the septum, no polypi, and nothing abnormal in the naso-pharynx. Chest emphysematous. I ordered him iodide of potassium three times a day, and the following mixture to be taken for relief of cough and shortness of breath:—

℞. Liquoris Trinitrini, ♏ $\frac{1}{3}$,
Oxymellis Scillæ,
Tincturæ Camphoræ Compositæ, a.a. ℥ $\frac{1}{2}$,
Spiritus Œtheris Nitrosi, ♏ xx,
Aquam, ad. ℥i. M.

He came again in two months' time and reported that he had had great relief from the treatment. He now mentioned that he had a clear, watery discharge from the nose at the time of the attack. I applied the galvano-cautery to the right inferior turbinal. I lost sight of the patient until April, 1896, when he again came to see me and said that he had been very well until the last few weeks. On examining the nose I found polypi in both nostrils. I cleared out the nostrils, much to his relief in all respects. The particular interest of this case is the connection of the asthma with nasal trouble. At the commencement of the asthma he had sneezing, the onset of an attack was accompanied by a watery discharge, but it was not until the asthma had existed for at least seven years that polypi developed in the nose. I have seen many cases of asthma complicated with nasal polypi, but this is the only example I have met with in which polypi appeared in a patient already suffering from asthma.

Though polypi represent the intra-nasal lesion most frequently found associated with asthma, any affection of the nose may be the starting-point of asthma. Spurs and crests on the septum, deflection of the septum, hypertrophic and atrophic rhinitis, have been noted as apparently giving rise to asthma. Adenoids may also cause asthma. A patient of mine, aged 21, who had suffered from asthma for two years, completely lost it after the removal of adenoids. According to Lichtwitz,* symptoms resembling

* 'Journal of Laryngology,' vol, xi, p. 161.

asthma were seen in five patients as a complication of empyema of the accessory nasal cavities. Believing as I do in the connection between intra-nasal lesion and the development of asthma, I would strenuously advise that a systematic examination should be made of the nasal fossæ and accessory sinuses, and if any gross lesion is found it should be promptly treated.

### Emphysema.

Emphysema is another lung affection which has intimate relation with diseases of the nose and throat. Any of the various causes of nasal obstruction may, as a result of the chronic pharyngeal and laryngeal catarrh and consequent irritable cough thereby produced, give rise to emphysema. It is probable also that emphysema may be directly due to nasal obstruction: this is borne out by the experiments of Dr. Cervello* on dogs. He finds that occlusion of the nostrils invariably produces in a few days pulmonary emphysema in completely healthy dogs. I have seen the progress of a somewhat rapidly increasing emphysema at once checked by the amputation of an elongated uvula, and I have seen equally good results from the treatment of granular pharyngitis by the galvano-cautery. These remarks will, I think, be sufficient to indicate the desirability of looking out for the cause of any chronic cough, and not to be satisfied with simply ordering some cough mixture. Amputation of the uvula is an operation which has been much abused in the past, but there is no reason why on this account it should not be performed in suitable cases. If the uvula is elongated in a patient who is suffering from a chronic cough, with little or no expectoration, and nothing in the chest can be found to account for it, and if the cough is worse at night or on lying down, then the uvula may, with advantage, be amputated.

### Pneumonia.

Epistaxis is sometimes observed in pneumonia; it may be an early symptom, or occur as one of the critical phenomena. Just as acute rheumatism may follow an attack of tonsillitis, so, I believe, may pneumonia. Whether the pneumonia is of septic origin, or whether the micro-organism (be it the diplococcus of Fraenkel

* 'Revue de Laryngologie.' 1890, p. 773.

or the pneumococcus of Friedlaender) first sets up inflammatory mischief in the tonsil, and then proceeds to affect the lung, I must leave to be settled by those skilled in bacteriology. Dr. Wallace, of Crick,* has recorded a case of the kind. The patient, a man 36 years of age, had an attack of sore throat (quinsy), followed by pneumonia. Examination of the sputum showed numerous long chains of streptococci, staphylococci, pneumococci single, double, and in short chains, and zoogleæ of micrococci. In a patient in the Westminster Hospital under my care, an attack of acute laryngitis came on during the course of a pneumonia.

### Shape of the Chest.

The state of the nose and naso-pharynx has a profound influence on the shape of the chest. Any interference with free nasal respiration, whether in the nose or naso-pharynx, in early life, will give rise to a characteristic deformity. Adenoid vegetations, as being the most common cause of defective nasal breathing, are usually found to be present. At one time it was thought that enlarged tonsils were the cause of this deformity, but the observations on which this view depended were mostly made in the pre-adenoid days, and, as adenoids are almost invariably associated with enlarged tonsils, it is probable that the latter usually play quite a subordinate rôle in the production of the deformity in question. That enlarged tonsils alone are capable of causing deformity of the chest is shown by two cases reported by Dr. Norman Moore.† He made a cyrtometrical drawing of the chest in each case before and some time after the removal of the tonsils, and the cup-shaped depression in the chest, which was present before the operation, was found to have disappeared when the second tracing was made. My colleague, Mr. Tubby,‡ has given an excellent representation of the changes seen in the thorax :— "The chest is bulged at its upper and middle part, and retracted in its lower part and excavated. The sternum is not so keel-like as in rickets, and the lateral vertical grooves are absent. The antero-posterior diameter is increased, while the transverse is diminished." The retraction of the lower part of the chest is due

* 'Lancet,' February 15th, 1896, p. 416.

† 'St. Bartholomew's Hospital Reports,' vol. x, p. 129.

‡ 'Deformities, a Treatise on Orthopædic Surgery,' p. 211.

to the contractions of the diaphragm drawing in the chest, which is insufficiently inflated with air owing to the interference with free nasal respiration. If the adenoids or other causes of nasal obstruction are removed before the bones are firmly ossified, the deformity may be almost completely cured, and recovery of the shape of the chest is accelerated by the judicious employment of extension and gymnastic exercises. According to Mr. Tubby,* during infancy and early childhood the subject of nasal obstruction shows deformity of the chest alone; between the ages of 6 and 10 years, kyphosis makes its appearance; and from 10 to 16 years of age, scoliosis supervenes on the kyphosis.

## Diseases of the Circulatory System.

As we have already seen in connection with rheumatism, the heart may become affected with valvular disease as the result of a rheumatic tonsillitis, but it is not so generally recognised that an infective endocarditis may have a tonsilar origin. A case reported by Charrin† is a good illustration of this connection. On *post-mortem* examination, staphylococcus aureus, which during life had been found swarming on the exudation over the tonsils, was present in the broncho-pneumonic patches and the valvular vegetations. Dr. Dreschfeld,‡ in describing the paths of entrance of the microbes in infective endocarditis, says:—"Probably the tonsils, which are so often affected in rheumatic endocarditis, may occasionally serve as the means of entrance, and thus again some of the so-called 'primary cases' may be explained." Löri§ states that in four out of five cases of acute septic endocarditis which he has observed, ecchymoses have been present in the pharynx, larynx, or trachea. Loss of substance in the larynx, and hæmorrhage from the pharynx, larynx, and trachea, have been also met with in acute septic endocarditis. Von Stein,‖ of Moscow, as the result of an examination of the symptoms observed in 50 patients suffering from cardiac neuroses, and presenting at the same time

* *Op. cit.*, p. 155.

† Epitome, 'Brit. Med. Jour.,' 1896, vol. i., No. 287.

‡ 'Allbutt's System of Medicine,' vol. i, p. 633.

§ 'Die durch anderweitige Erkrankungen bedingten Veränderungen des Rachens, des Kehlkopfes und der Luftröhre,' p. 58.

‖ 'Revue de Laryngologie,' 1890, p. 35.

an increase, more or less pronounced, in the size of the inferior turbinals, has ventured to draw the following conclusions:—(1) A hyperplasia, more or less marked, occupying in the greater number of the cases exclusively the two inferior turbinals, without points of irritation or hyperæmia, but with complete or intermittent obstruction of the nose, causes a sensation of weight, of constriction, and of angina in the cardiac region. (2) When to this condition is added a transitory vascular injection of the ocular conjunctiva and of the extremity of the nose—an injection which is reproduced by lightly touching the nasal mucous membrane—then there will be palpitation of the heart, often accompanied by sensation of giddiness, of want of air, and of precordial weight. Von Stein has found these symptoms disappear after cauterisation of the mucous membrane.

Tachycardia may be associated with intra-nasal disease. Mr. Spencer Watson* has reported a case of nasal polypi in which the pulse-rate was 120 per minute, the tachycardia being persistent. After the nostrils had been completely freed from obstruction, the cardiac trouble ceased. In contradistinction to tachycardia, a slow pulse may be met with in certain nasal affections. Lichtwitz† reports the case of a patient with empyema of all the sinuses, who had a pulse of 28 to 30 to the minute, which became normal after treatment. Tachycardia has been observed to follow excision of the larynx.‡ It has been suggested that it was due to division, in the course of the operation, of an abnormal cardiac branch of the superior laryngeal nerve, with functions similar to those of Cyon's depressor nerve. Dr. Toti, however, relates a case in which the patient developed intense tachycardia (from 160 to 180 beats a minute) *thirty hours* after the operation for total excision of the larynx. He continued in that state for 24 hours and ultimately died of cardiac paralysis. If, however, the tachycardia were in this case the result of the division of the nerve, it ought to have appeared immediately after the operation instead of being delayed for 30 hours. At present, therefore, no satisfactory explanation of the occurrence of tachycardia in these cases is forthcoming. Besides causing tachycardia, nasal lesions occasionally give rise to irregularity in the action of the heart.

* 'British Medical Journal,' 1895, vol. ii, p. 1097.

† 'Journal of Laryngology,' vol. xi, p. 161.

‡ 'Medical Week,' 1893, February 17th.

Dr. Sansom,* in a discussion following the reading of his paper, entitled "The Irregular Heart: a Clinical Study," read before this Society, on December 12th, 1892, said:—"He thought that nasal and aural troubles were amongst the commonest reflexes which started the cardiac derangement."

### Exophthalmic Goitre.

In exophthalmic goitre, and as we have just seen in the allied condition, tachycardia, intra-nasal changes play an important part. Mr. Arthur Maude,† who recently presented his valuable series of monographs on exophthalmic goitre to the Library of the Royal College of Surgeons, has collected the following cases in which operative interference in the nose has been carried out in cases of Graves's disease. "Hack (of Freiburg) removed part of the inferior turbinated bones, which were the seat of chronic thickening, in a girl of 16, in whom exophthalmos had existed since childhood, and palpitation and goitre for many months. The operation was performed with the galvano-cautery, and subsidence of the symptoms followed.‡ Fraenkel§ also reports the amelioration of symptoms which followed the application of the galvano-cautery to the inferior turbinated bones. The application was made to the two sides at some weeks' interval, and the "immediate effect on the goitre was limited to the side treated"; after application was made to both sides the thyroid enlargement disappeared, and the pulse regained its normal rate. Bobone‖ makes a similar observation. Hopmann,¶ by treating chronic atrophy of the mucous membrance of the nose in a woman the subject of exophthalmic goitre, claims to have cured the palpitation and exophthalmos." A case recorded by Mr. Spencer Watson** of a woman 54 years of age, with prominent eyeballs, great mental depression and fainting fits, was probably one of exophthalmic goitre. There was extensive hypertrophy of both

* 'Medical Society's Transactions,' vol. xvi, p. 115.
† 'St. Bartholomew's Hospital Reports,' vol. xxviii, p. 28.
‡ 'Deutsche medicinische Wochenschrift,' 1886, xii, p. 25.
§ 'Berliner klinische Wochenschrift,' 1888, xxv, p. 111.
‖ 'Annales d'Oculist,' 1886, xcvi, p. 260.
¶ 'Berliner klinische Wochenschrift,' 1888, xxv, p. 42.
** 'Medical Society's Transactions,' vol. xv, p. 309.

inferior turbinals, which were removed with great relief to the symptoms. Dr. Scanes Spicer * has recorded a case of incomplete Graves's disease associated with nasal polypi. In this case, although the enlargement of the thyroid, the tachycardia, the tremor and nervous excitement were well marked, Dr. Spicer elected to call it incomplete Graves's disease from the subordinate character of one of its leading symptoms—the exophthalmos. The polypi were removed with the cold wire snare, and as the nasal passages gradually became pervious the thyroidal swelling diminished and became less defined, the pulsation less, and the slight exophthalmos and tremors disappeared.

Over against the above cases of exophthalmic goitre successfully treated by intra-nasal operative procedures must be set the remarkable case of unilateral incomplete Graves's disease after removal of nasal polypi, recorded by Dr. Felix Semon. † The patient was a man, 33 years of age, with multiple polypi in both nostrils. After repeated operations with the galvano-caustic loop under cocaine, it was noticed that the patient's right eye had become more prominent than the left, but there was no enlargement of the thyroid gland, the heart action was quiet, and the pulse-rate normal; in fact, no sign of a lesion of the sympathetic except the unilateral exophthalmos. When the patient was shown at the Laryngological Society ‡ four and a half years later, the pulse-rate had increased to about 100 but the exophthalmos had somewhat decreased; on the other hand complete baldness, extending over both sides of the head, had developed shortly after the first onset of the symptoms. The hair had also come off from other parts of the body. In connection with this case it may be mentioned that Mr. R. S. Charsley § has observed marked enlargement of the glands in the neck and protrusion of the eyeballs lasting for a period of three months after operation for removal of a turbinate body with the galvano-cautery. The pulse had ranged as high as 110, but complete recovery ensued. The only nasal trouble that I have myself noticed in Graves's disease was very profuse epistaxis in a lady aged 40. The patient was much weakened by the repeated losses of blood, so I applied the

* 'Clinical Society's Transactions,' vol. xxviii, p. 265.

† *Ibid.*, vol. xxii, p. 233.

‡ 'Proceedings of the Laryngological Society,' 1893, p. 41.

§ *Ibid.*

galvano-cautery to the bleeding point and at once arrested the hæmorrhage, which gave her no further trouble. The course of the disease was not apparently modified by stopping the loss of blood, and the patient eventually died from exhaustion consequent on profuse diarrhœa.

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## LECTURE III.

### Aneurysm.

In aneurysm of the aorta the laryngoscope is oftentimes of inestimable service in enabling the practitioner to make an early diagnosis, and, consequently, to allow of the institution of prompt treatment. It may be laid down as an axiom that, given the left vocal cord is immobile in the cadaveric position, pressure of an aneurysm upon the recurrent laryngeal nerve is the first thing to be thought of, and it is only after an aneurysm has been excluded that other causes for the paralysis of the laryngeal muscles need be considered. This is more especially the case in males between the ages of 30 and 60. It must be remembered that in accordance with Semon's law, "there is proclivity of the abductor fibres of the recurrent nerve to become affected sooner than the adductor fibres or even exclusively in cases of undoubted central or peripheral injury or disease of the roots or trunks of the pneumogastric, spinal accessory, or recurrent nerves;" consequently, the first effect of pressure on the recurrent nerve is to cause adductor paralysis on the affected side. Now, unilateral abductor paralysis presents such slight symptoms that in the absence of a laryngoscopic examination it is generally overlooked, still numerous cases have been recorded in which this condition has been observed as a symptom of thoracic aneurysm. When, however, the adductor fibres become implicated and the cord passes into the cadaveric position, the effect on the voice is so marked that the patient feels that something is amiss with him, and consequently seeks advice.

Attempts have been made to distinguish aneurysms from other intra-thoracic tumours by the mode of onset of the laryngeal paralysis. Schadewaldt* maintains that paralysis of the recurrent due to a mediastinal tumour develops gradually. Hoarse-

* 'Journal of Laryngology,' 1895, p. 328.

ness sets in but again passes off, and a paresis can be demonstrated only after a considerable time. In aneurysm, he says, paralysis of the vocal cord is often the first symptom. Rosenberg,* however, denies that recurrent paralysis is present at first in aneurysms, whilst it only develops gradually in mediastinal tumours. At the beginning, even in aneurysms, an irritation of the recurrent may set in, which is manifested in laryngeal spasm. There is, of course, no general rule as to paralysis of the vocal cord preceding the heart symptoms, as Rosenberg † showed a patient at the Berlin Laryngological Society in whom the heart symptoms preceded the fixation of the cord by from three to four years.

In looking over the notes of 16 private cases of aneurysm, of which I have full particulars, I find that they were all males, the youngest 29 and the eldest 61 years of age, the average age being almost exactly 47. Of these 16 cases, in one case there was bilateral paralysis of the abductors, the left vocal cord was in the cadaveric position in eight, in five there was impaired movement (loss of abduction) of the left vocal cord, and in two the laryngoscopic appearances were normal. The right vocal cord was only affected in the case of bilateral paralysis of the abductors.

The proportion of cases in which the left vocal cord was partly or completely paralysed is, of course, much greater in my practice than in ordinary general practice, inasmuch as several of the cases consulted me on account of hoarseness and had no suspicion that they were suffering from any serious affection, still this only emphasizes the importance of a laryngoscopic examination in all cases of hoarseness, and as I have said before a loss of mobility of the left vocal cord in a middle-aged male, especially if the cord is in the cadaveric position, should at once arouse the suspicion of an intra-thoracic aneurysm.

Tansk's ‡ observations on 41 cases of aneurysm, mostly of the arch of the aorta, seen in the Clinic at Pest, confirms what I have just stated; hoarseness was observed in 22 cases and paralysis of the recurrent nerves in 19, usually on the left side, and bilateral paralysis was said to be very rare. The reason why the right vocal cord is so seldom affected depends upon anatomical considerations; the right recurrent nerve winds round the subclavian

* 'Journal of Laryngology,' 1895, p. 331.

† 'Centralblatt für Laryngologie,' vol. xii, p. 137.

‡ 'Journal of Laryngology,' 1894, p. 458.

artery and is, therefore, situated at a considerable distance from the arch of the aorta. Should, however, the sac of the aneurysm involve the innominate artery the right recurrent nerve may be implicated, or, as in an extremely interesting case communicated by Dr. Scanes Spicer * to the Laryngological Society, the aneurysmal tumour had displaced the lower part of the trachea backwards and to the right in such a way that the convexity of the deflected trachea pressed on the right recurrent and pneumogastric nerves, causing paralysis of the right vocal cord. Lastly, as Dr. George Johnson † suggested, centripetal irritation of the trunk of the left vagus may act on the nervous centre, and through it upon the nerve supply to the laryngeal muscles on the right side.

A case of Mr. Bowlby's,‡ in which an aneurysm of the aortic arch compressed the left pneumogastric and recurrent laryngeal nerves and the trachea, and in which there also existed abductor paresis of the right cord, is a good illustration of Johnson's theory, as at the *post-mortem* examination the right pneumogastric and recurrent laryngeal nerves were found to be quite free from all pressure.

I have found the combination of complete paralysis of left vocal cord due to pressure on the left recurrent nerve by malignant disease, together with the existence of valvular disease and enlargement of the heart extremely difficult to distinguish from an intra-thoracic aneurysm. In a case recently under my care in the Westminster Hospital there was a double aortic murmur together with a mitral systolic murmur, and the left vocal cord being in the cadaveric position a diagnosis of aneurysm was made. At the *post-mortem* examination there was no aneurysm, simply great dilatation of the left side of the heart. The cause of the laryngeal paralysis was not clear. In cases of this kind a correct diagnosis is only to be obtained by careful and prolonged watching of the patient.

Before quitting the subject of aneurysm I should like to draw attention to the importance of observing the movements of the larynx externally in cases of dyspnœa. Whenever the obstruction is seated at the glottis it will be seen that the larynx moves up and down with the movements of respiration, and the activity of these movements are in proportion to the urgency of the dyspnœa.

* 'Proceedings of the Laryngological Society,' vol. ii, p. 27.

† 'Royal Medical and Chirurgical Society's Transactions,' vol. viii, p. 32.

‡ 'Proceedings of the Laryngological Society,' vol. ii, p. 20.

The term respiratory excursions has been applied to these movements of the larynx. If, however, the obstruction is seated in the trachea these excursions do not take place. In two of my cases I diagnosed during life the existence of direct pressure of an aneurysm upon the trachea in consequence of the absence of respiratory excursions, and at the necropsy my diagnosis was verified. One of these cases is of particular interest, inasmuch as it affords an example of bilateral stenosis of the air-passage due to aneurysm.* In addition to the direct pressure of the aneurysm upon the trachea, there was also laryngeal obstruction due to paralysis of the crico-arytenoidei postici and consequent adduction of the vocal cords. In cases of direct pressure upon the trachea the question of the utility of tracheotomy has to be carefully considered. In a case of double stenosis, such as I have just mentioned, I should be prepared to advise it, as it is impossible to guage how much of the difficulty of breathing is due to the upper obstruction and how much to the lower. Where, however, we have to deal only with the result of direct pressure upon the trachea, as occurred in my other case, I do not think that tracheotomy would be of any use. As soon as there is evidence of sufficient pressure upon the trachea to cause absence of respiratory excursions of the larynx the patient is in a position of imminent peril.

In some of these cases it is possible to recognise the direct pressure of an aneurysm upon the trachea by means of the laryngoscope. The bulging forward of the posterior wall can be seen, and with a good light and a tolerant patient pulsation may even be distinguished. Dr. Whipham † has put on record a case in which during life pressure upon the trachea just above the bifurcation was seen. In this case it was almost entirely due to the laryngoscope that the diagnosis of aneurysm was established.

## Diseases of the Digestive System.

The possibility of chronic gastric catarrh being kept up by the irritation produced by swallowing fœtid secretion from the nose and naso-pharynx should be borne in mind by the physician, who finds that his patient does not readily respond to the usual treat-

* 'Clinical Society's Transactions,' vol. xix, p. 80.

† *Ibid.*, vol. xiv, p. 197.

ment. Whether as the result of the improvement of the general health, or from the cessation of the local cause of irritation, I have noted that symptoms of dyspepsia have disappeared after the nose and accessory sinuses have received attention. F. B. Turck * has made a careful bacteriological examination of the micro-organisms present in cases of chronic naso-pharyngitis and gastritis in the same subject, and he has found that they presented identical morphological and physiological appearances. Four cases are given in which treatment of the naso-pharynx cured the stomach also.

That the stomach may be involved secondarily to the upper air passages is pretty generally agreed, but the converse is not so easy to prove, that is to say, that affections of the upper air passages may occur as a result of stomach derangements.

Various theories may be propounded to explain the connection between affections of the upper air passages and diseases of the stomach. We may appeal to the theory of reflexes and say, with M. Gross,† that "every affection of the stomach is reflected back on the other organs, and inversely, every disorder of the organs reacts upon the stomach." Or we may attribute to the ubiquitous bacillus the *rôle* of disturbing the functions of remote organs. I have already quoted Turck to show how the stomach may be affected by diseased conditions of the nose and naso-pharynx through bacteria. As regards the converse process, J. F. Free ‡ states: "If there is a morbid process at work in the stomach, there will be established in it colonies of bacteria in abundance; the toxins may be absorbed, and nourishment to the tissues thus contaminated, and every tissue of the body compelled to feed on this contaminated blood." The tissues of the throat thus being imperfectly nourished, readily succumb to slight irritations, which would pass unnoticed under normal conditions of nutrition.

Laryngismus stridulus, due to over-distension of the stomach or to the ingestion of unwholesome food, has been long recognised, and I cannot help thinking that the virtue of emetics—notably ipecacuanha wine—in these cases is largely dependent on the fact that the spasm of the glottis is relieved as soon as the stomach is emptied of the contents which had caused reflex irritation.

* 'Journal of Laryngology,' vol. x, p. 158.

† *Ibid.*, vol. xi, p. 126.

‡ *Ibid.*

Ariza* (Madrid) cites a case (Virchow's 'Annalen') of aphonia as a result of indigestion, which was relieved by an emetic. He has for a long time been of opinion that the diseased stomach can give rise to reflex appearances in the larynx. He designates these conditions by the name of "Gastric laryngismus," and divides them into three classes.

Löri† states that diseases of the larynx can cause affections of the stomach and *vice versâ*. He mentions three cases in his practice where in children, through disease of the posterior wall of the larynx (in one case a fish bone had stuck in it, and in two cases inflammatory swelling of the posterior surface of the arytenoids was present), vomiting, eructations, and pain in the stomach were produced. On the removal of the laryngeal affections, the stomach troubles also ceased; Löri thinks that these were caused partly in a reflex manner and partly through air being frequently swallowed. Moreau Brown‡ mentions the case of a restaurant keeper, about 45 years of age, who was fond of rich food. He was subject to attacks of acute inflammation of the upper air passages, accompanied with asthma, the attacks being generally preceded by gastro-intestinal disorders. Treatment directed to the inflammation of the air passages failed to give relief until a saline laxative and remedies applicable to the condition of the digestion were employed.

"Stomach cough" is a term often employed by the laity, and, like many another popular expression, it contains an element of truth. My friend, Dr. Lauder Brunton, in his interesting Lettsomian Lectures on 'Disorders of Digestion,' discussed this subject. He pointed out that "it is just at the pharynx—at the place where the respiratory and digestive tracts cross one another—that irritation is most likely to give rise to both coughing and vomiting."§ He cites a pertinent case from his own practice. "A gentleman suffered from cough which gave him a good deal of trouble, the back of his pharynx was congested, and I ordered him a gargle. For some time it was not a bit better, and then for some reason or another somebody else gave him several blue pills, and the cough disappeared." In speaking of the treatment of

* 'Centralblatt für Laryngologie,' vol. ii, p. 446.

† *Ibid.*, vol. i, p. 360.

‡ 'Journal of Laryngology,' vol. xi, p. 124.

§ 'Disorders of Digestion,' p. 40.

granular pharyngitis in my book on 'Diseases of the Nose and Throat,'* I say that "it is most important that attention should be paid to the general health of the patient. If there be any symptoms of indigestion, these should be seen to." Further experience has only confirmed what I have therein stated, and I am convinced that the state of the pharynx is much influenced by the condition of the stomach and liver, and that, even though there be some trouble in the pharynx, it is not sound practice to adopt local treatment until the state of the digestive system has been inquired into.

### Diseases of the Liver.

In connection with hepatic diseases I have only to remark that very severe epistaxis is not uncommonly an early symptom of cirrhosis of the liver, the bleeding occurring from dilated veins at the posterior part of the nose. The late Dr. Harkin,† of Belfast, laid especial stress on the connection between nose bleeding and liver disease; he regarded epistaxis as a sign of a blood dyscrasia, itself a secondary result of a disordered liver. In a middle-aged person the occurrence of epistaxis is almost as suggestive of cirrhosis of liver as are piles.

Cahn,‡ of Strassburg, mentions a case in which typical attacks of paroxysmal rhinitis were caused by an affection of the biliary passages.

Hæmorrhages from, and ecchymoses in, the mucous membrane of the pharynx and larynx may be recognised in some cases of cirrhosis, cancer of the liver, and acute yellow atrophy. A recent development of throat specialism is the doctrine that a varicose condition of the veins at the base of the tongue is one of the objective causes for many subjective throat symptoms of the nature of "globus hystericus," or as it is designated by the believers of this condition, "faucial," "pharyngeal," and "laryngeal tenesmus." A lengthy discussion which took place in the columns of the 'Lancet' in the early part of last year has been the means of relegating lingual varix to its proper position. The opinions expressed in a leading article in the 'Lancet'§ on

* P. 181.

† 'Dublin Journal of Medical Science,' June, 1892.

‡ 'Centralblatt für Laryngologie,' vol. xii, p. 424.

§ 1896, vol. i, p. 859.

the subject are in entire concordance with my own views and with those, I believe, of the great majority of laryngologists. That an enlargement of the veins at the back of the tongue does occasionally exist I am quite ready to admit, and I will go so far as to say that in exceptional cases the enlarged veins may be called varicose, but that this condition is "an etiological factor in many obscure pharyngeal and laryngeal symptoms," does not agree with my own observations. When I have seen engorgement of the veins in the pharynx and at the base of the tongue it has usually been associated with a state of general plethora in people past middle life, and I have found that with attention to diet, limiting the amount of alcohol taken and the administration of saline aperients, the patients have speedily improved and have not required any local treatment. In fact I regard this condition as closely allied to the passive congestion of the rectal mucous membrane in liver disease, which so frequently leads to the formation of piles. Hence I have mentioned the subject of lingual varices under the head of liver affections. I am sure that we shall all agree with Dr. McBride * that "if we are to cauterise every visible venous radicle which appears in front of the epiglottis we shall put our patients to much needless inconvenience and perhaps to some very unnecessary expense."

### Bright's Disease.

Epistaxis is a frequent symptom of chronic interstitial nephritis, and is occasionally met with in the other forms of Bright's disease. It may be quite an early sign of granular kidney; the urine should therefore be examined in cases of abundant or frequent epistaxis. The bleeding is dependent upon the altered blood state, changes in the vessels of the Schneiderian mucous membrane, and upon the cardiac hypertrophy and increased arterial tension. In itself it is seldom an important symptom, yet it may be the direct cause of death from excessive loss of blood; usually it seems rather to relieve the patient, especially if it occurs, as is frequently the case, in patients suffering from chronic interstitial nephritis. Its chief importance in Bright's disease, however, is from a prognostic point of view, it may be the precursor of an uræmic attack, or the next vessel to give way may

* 'Lancet,' 1896, vol. i, p. 581.

be one seated in a vital part of the body, as, for instance, the brain, hence the occurrence of epistaxis in Bright's disease should lead the physician to take suitable measures to lower arterial tension and to ward off, as far as possible, the danger which threatens his patient.

A moderate amount of bleeding is, as I have said before, a relief to the patient in most cases; should it become too profuse it must be arrested in the usual manner. If the patient has not been on a milk diet, the occurrence of epistaxis should suggest the advisability of ordering it for the patient.

The effect of Bright's disease as a predisposing cause of œdema of the larynx is very differently estimated by various authorities. Morell Mackenzie * examined 200 cases of Bright's disease in the London Hospital, and did not find a single example of œdema of the larynx, and George Johnson, who had special opportunities of investigating diseases, both of the larynx and of the kidneys, stated that he did not remember to have seen a case of œdema of the larynx as a direct result of Bright's disease. On the other hand Peltesohn, † on the *post-mortem* records of the Königliche Charité for the years 1873–1878 (inclusive), found 210 cases of œdema of the larynx, and in 25 of these cases there was disease of the kidneys.

The exact connection between Bright's disease and œdema of the larynx is still under discussion. The probable explanation is that Bright's disease determined the onset of œdema in cases in which, under ordinary circumstances, the local irritation would have been too slight to have caused it. Mendel ‡ records a case which supports this view. A patient suffering from Bright's disease, with general œdema, suddenly experienced suffocative attacks. On examination œdema of the larynx was seen. When the patient recovered, Mendel found a small conical tumour on the posterior aspect of the epiglottis; this he regarded as the indirect cause of the laryngeal œdema, by constituting a *locus minoris resistentiæ*. Œdema of the larynx in connection with Bright's disease may occur late in the course of the disease, coming on gradually, or it may form the first symptom, there having been no previous manifestation to give rise to even a

* 'Diseases of the Throat and Nose,' vol. i, p. 276.

† 'Separat Abdr. aus Berliner klin. Wochenschrift,' 1889, No. 44.

‡ 'Revue de Laryngologie,' 1891, p. 573.

suspicion of the existence of disease of the kidneys. The œdema may come on so rapidly and to such an extent as to threaten life; tracheotomy should be performed early in these cases, but, if possible, subcutaneous injections of pilocarpine should be first tried.

### Locomotor Ataxy.

Nasal conditions associated with tabes are rare; "slow, quiet destruction of the septum nasi and hard palate" has been recorded by Barrs,* and trophic ulceration of the ala nasi has also been noted.† That there is hyperæsthesia of the nasal mucous membrane is shown by the fact that laryngeal crises can at times be elicited by irritating the nasal fossæ.

In the pharynx both the sensory and the motor nerves may be affected. All varieties of sensorial disturbance may occur—viz., anæsthesia, hyperæsthesia, and paræsthesia. On the motor side there may be paralysis, or spasm with contraction. An interesting case of pharyngeal spasm has been recorded‡:—A man, aged 62, tabid for 20 years, with no history of syphilis. Without reason he had an attack of pharyngeal tonic spasm, which prevented the introduction of food or drink. There was no laryngeal or œsophageal spasm. The muscles of the posterior and lateral part of the pharynx were alike tetanised. By the method of suspension the spasm disappeared at the first sitting, and there was no recurrence afterwards. Pharyngeal troubles are usually met with in association with laryngeal symptoms.

The mucous membrane of the larynx, like that covering the pharynx, may be the seat of anæsthesia, hyperæsthesia, or paræsthesia. On the motor side three kinds of affection are seen in the larynx as a result of tabes: (1) Spasm of the adductors; (2) paralysis of the abductors; (3) Inco-ordination of the laryngeal muscles.

The term "laryngeal crisis" has been applied to those sudden attacks of dyspnœa in tabid patients, due either to spasm of the adductors or paralysis of the abductors; or, what perhaps most frequently occurs, there is a mixed condition—that is to say, in addition to the spasm of the adductors there is some loss of power, or even paralysis of the abductor muscles. According to Semon

* 'British Medical Journal,' 1892, vol. i, p. 768.

† Giraudeau, 'Centralblatt für Laryngologie,' vol. xi, p. 453.

‡ 'Journal of Laryngology,' 1895, p. 850.

and Burger, the nocturnal occurrence of the crises in tabes is to be attributed to paralysis rather than to spasm.

Dr. Semon explains the onset of the crises by the hypothesis of an increased latent irritability of the adductor centres. A peripheral irritation, passing along the centripetal fibres of the superior laryngeal nerve to these centres, instead of giving rise, as under ordinary circumstances, to a simple attack of cough, starts off spasmodic cough, spasm of the glottis, and general convulsions, in proportion to the increased irritability of the centres in question. As I have already mentioned, there is in some cases of tabes hyperæsthesia of the pharyngeal and laryngeal mucous membrane, and slight irritation of the sensory area may cause, either directly or indirectly, spastic contraction of the glottis-closers. This is shown by the fact that crises can at times be elicited by causing the patient to drink a glass of water, or by touching the larynx with a sound. The good effect in these cases of spraying the pharynx and larynx with cocaine is another proof. Paralysis of one or both vocal cords is by no means an uncommon initial symptom of tabes, and may precede other evidences by some years. The existence, therefore, of laryngeal paralysis, and especially of abductor paralysis, without a definite cause, should give rise to a suspicion of tabes. As a rule, laryngeal crises do not occur until the tabid symptoms are well established, but they may represent the earliest symptoms of the disease. The attacks come on quite suddenly, and consist of fits of coughing resembling whooping cough. Dyspnœa accompanies the attacks, and in exceptional cases the spasm is so prolonged that the patient becomes cyanosed, and death has occurred under these circumstances. The crises are occasionally attended by vertigo, profuse perspirations, and lightning pains in the extremities; they are sometimes followed by convulsions and loss of consciousness. During a laryngeal crisis the vocal cords are in the median line; in the intervals the larynx may be found quite normal, but usually there is more or less impairment of abduction.

In the second variety of tabid laryngeal affection, which is by far the most common form, there exists a paresis or paralysis of the vocal cords, more or less permanent in nature. Out of 71 cases of tabid patients suffering from laryngeal paralysis collected by Burger,* in 43 cases there was either unilateral or bilateral

* 'Die laryngealen Störungen bei Tabes dorsalis.'

paralysis of the abductors. In eight of the cases there was unilateral abductor paralysis, five times on the left side, twice on the right, and in one case the side affected was not stated. Out of 27 cases of tabes examined by Dr. Semon at the National Hospital for the Paralysed and Epileptic, seven had abductor paralysis of one or both vocal cords. Hence paralysis of the abductors is *the* paralysis of tabes.

In a case of tabes with bilateral paralysis of the glottis-openers, shown by Dr. Semon at the meeting of the International Medical Congress in London in 1881, bilateral paralysis of the internal thyro-arytenoid muscles has been superadded to the original paralysis. I had the opportunity of seeing this patient in 1881, and again in May, 1893. Dr. Semon pointed out that the case was interesting on account of its uncommonly slow course, and the persistence, for certainly more than 12 years, of the paralysis of the glottis-openers. The paralysis of the internal tensors corroborates Dr. Semon's view that these muscles are the next after the abductors, in order of time, to succumb to progressive organic disease.*

The remaining laryngeal affection of tabes is a true ataxy of the vocal cords, and it is, perhaps, one of the earliest laryngeal signs of tabes. In some cases the patient suddenly and unexpectedly loses his voice, or at least the power of distinct articulation, the voice becoming thick, dull, and discordant. On phonation, the cords are seen to approximate suddenly, then remain still in a semi-adducted position, and again approximate in the median line. The cords, after having been thus violently brought together, separate during abduction into the most extreme inspiratory position. During regular and deep respiration irregular movements of the vocal cords have been seen—*i.e.*, the vocal cords executed two or three movements of abduction or adduction instead of one.

### Syringomyelia.

The condition of the larynx in this disease has received very little attention in this country. Dr. Gowers † mentions the fact that paralysis of one vocal cord has occurred, but says nothing

* 'Proceedings of the Laryngological Society,' vol. i, p. 17.

† 'Diseases of the Nervous System,' 2nd edition, vol. i, p. 577.

more on the subject. Cartaz * has, however, carefully examined 17 cases of syringomyelia, and states that in nearly one-half there was either a sensory or a motor modification.

In four cases there was abolition of reflexes; in seven, paræsthesia or anæsthesia; in five, paralysis of one vocal cord; in three, paralysis of the posterior crico-arytenoid muscle, once with most distinct atrophy of the vocal cord, and once with paralysis of the recurrent. According to Cartaz sensory affections are more common than motor; they occur, however, independently of each other, corresponding generally to the side most affected. In some cases anæsthesia of the palate is complete when the syringomyelic symptoms are rather unilateral. Weintraud † has reported two cases of syringomyelia with isolated unilateral abductor paralysis. This is of especial clinical interest as a precursor of complete paralysis of the vocal cord, because in general it runs its course without giving rise to any symptom. In one of the cases there was also paralysis of the trapezius. Laryngeal crises, such as occur in tabes, have not been observed.

### Paralysis Agitans.

Observations on the condition of the larynx in paralysis agitans have been made by Fr. Müller ‡ and A. Rosenberg.§ The former describes the speech of a patient of 72 as being tremulous and interrupted by intervals of silence. Charcot || compares the articulation of a person with paralysis agitans to that of a bad rider trying to talk when mounted on a high trotting horse.

Müller observed that the passage of the vocal cords from the phonatory into the respiratory position was interrupted by two or three spasmodic movements of incomplete adduction. On agitation or prolonged speaking there were convulsive movements in the larynx during respiration. In the case described by

* 'Journal of Laryngology,' 1895, p. 773.

† 'Centralblatt für Laryngologie,' vol. xi, p. 658.

‡ 'Charité Annalen,' Bd. xii, S. 267, 1887 ('Centralblatt für Laryngologie,' v, p. 76).

§ 'Berliner klin. Wochenschrift,' 1892, No. 31 ('Centralblatt für Laryngologie,' x, p. 46).

|| 'Principles and Practice of Medicine,' Fagge and Pye-Smith, 3rd edition, vol. i, p. 715.

A. Rosenberg there was a difficulty in emitting a prolonged sound, and above all in maintaining the sound at its initial pitch, the voice always tending to fall. Laryngoscopically, the cords were seen to approach promptly, but they did not maintain this position long. At another time the cords did not appear to obey the will immediately—there was a relatively long interval between the command and the commencement of phonatory adduction. A narrow elliptical chink was left between the cords, which increased or diminished in a rhythmic fashion, corresponding with the movements of the head and upper extremity. The question whether these disturbances of movement are to be considered characteristic of paralysis agitans may, after comparison with the disturbances in hysteria, sclerosis, tabes, progressive muscular atrophy, and chorea, be answered in this way, that the motor disturbances in paralysis agitans exhibit, indeed, a resemblance to the disturbances in multiple sclerosis especially, but are nevertheless to be distinctly differentiated from them, and they show the same characters as the other affected parts of the body, viz., tremor, slowness of action, and early fatigue.

### Labio-glosso-laryngeal Paralysis.

Loss of the pharyngeal and laryngeal reflexes may be an early symptom; Kussmaul reports two cases in which this symptom was present some months before any paralytic affection appeared. Owing to the loss of the laryngeal reflex, foreign bodies may enter the larynx and cause attacks of suffocation or give rise to broncho-pneumonia. The loss of reflex action is due to motor changes, as there is no loss of sensibility in the affected parts.

Löri * has only once met with anæsthesia of the pharynx, and never with anæsthesia of the larynx in bulbar paralysis. Laryngeal symptoms do not usually appear early in the course of the disease, nor are they usually very marked; in exceptional cases they may be entirely absent. According to Dr. Gowers, † though paresis of the laryngeal muscles is frequently met with, "laryngeal palsy rarely becomes complete, and it is still rarer for the power of abduction to be specially lost, common as abductor palsy is in some other forms of central degeneration." A fair

* 'Centralblatt für Laryngologie,' vol. ii, p. 463.

† 'Diseases of the Nervous System,' 2nd edition, vol. ii, p. 566.

number of cases of abductor paralysis are, however, to be found in the various laryngological journals; sometimes both sides are affected, but more commonly the paralysis is unilateral. Dr. Permewan,* for instance, has had the opportunity of watching the onset of abductor paralysis becoming absolutely complete, and the supervention of adductor paralysis. Dr. Suckling† has also recorded a case of bilateral paralysis of the abductors, and Dr. Semon‡ has put on record a case in which there was complete paralysis of the left abductor, and paresis of right abductor.

In a patient brought to me some years ago by Dr. Andrew, the only abnormal laryngeal condition I discovered was paralysis of the arytenoideus. Dr. Watson Williams§ records a case of thyro-arytenoid paralysis. So that, as might have been expected, paralysis is not confined to any particular muscle or group of muscles. Laryngeal manifestations may be the sole clinical expression of the extension to the bulb of spinal lesions. Laryngeal crises, which are so common in tabes, are hardly ever met with in bulbar paralysis.

The laryngeal affections met with in disseminated sclerosis, in cerebral tumours, and other affections of the brain and its membranes would take more time than I can give to them. In concluding my remarks on the laryngeal affections complicating diseases of the nervous system, I should like to direct attention to the excellent work done by Dr. Permewan‖ in investigating laryngeal paralysis in chronic nervous disease, and more particularly in general paralysis of the insane.

## Epilepsy.

At the second annual meeting of the Dutch Society of Laryngology, Rhinology, and Otology, held at Amsterdam on July 1st, 1894, Dr. Ten Siethoff communicated two cases of reflex epilepsy of nasal origin. They are so important that I do not think I can do better than quote his description *in extenso* from the 'Journal of Laryngology,' vol. ix, p. 468. The first case was one of a man,

* 'British Medical Journal,' 1894, vol. ii, p. 1171.
† *Ibid.*, 1892, vol. i, p. 259.
‡ 'Proceedings of the Laryngological Society,' vol. iii, p. 39.
§ 'Diseases of the Upper Respiratory Tract,' p. 177.
‖ 'British Medical Journal,' 1894, vol. ii, p. 1170.

38 years of age, who had suffered from epilepsy for 20 years. The attacks became more frequent and longer in duration, and they were accompanied by complete loss of consciousness, biting of the tongue, and tonic spasms of the extremities. On rhinoscopical examination there was found hypertrophy of the lower and middle turbinated bodies, and a crest on the cartilaginous septum. Cocaine was prescribed in 10 per cent. solution, which the patient's wife learnt to apply inside the nose, and with which it was possible at any time to cut short the attack. In view of this effect the nasal mucous membrane was treated by means of the galvano-cautery. The result was that for two years the attacks did not recur, and the patient now enjoys undisturbed good health. The second patient was a man, 30 years of age, who appears for a long time to have suffered from mild attacks of epilepsy, but in January, 1892, became the subject of his first severe seizure, which set in with a sensation of fœtor, and in which he fell downstairs. The subjective fœtor lasted for a week. Since that time he had similar attacks, at first every five, and then every three, weeks, which always commenced with the olfactory aura, lasting on an average for four days. Along with it there was anosmia. The right half of the nose was completely filled with swollen mucous membrane. On the application of cocaine for the sake of investigation, suddenly the facial expression of the patient changed, and he stated that the smell had as suddenly left him. The right lower turbinated body was hypertrophic, and had become attached to the septum in its whole length. The breadth of this synechia was two millimètres; the middle turbinated body was also hypertrophic and attached to the septum in its posterior part. Upon this latter, at a somewhat higher level than the inferior turbinal, there was a circumscribed soft swelling. The hypertrophies and the synechia were removed. After this the condition of the nose became normal, and the epilepsy totally disappeared. Only from time to time the patient has repetitions of the old smell, and his general condition has totally altered.

F. L. Crossfield has placed on record two cases, illustrating epilepsy caused by intra-nasal disease. The first case was observed in 1886. At first sight the patient appeared to be suffering from grave pulmonary lesions. Emaciation, cough, more marked at night, headache, night-sweats, loss of appetite. The patient has for six years been subject to epileptic fits about

twice a month or oftener. There also existed marked hypertrophy of the nasal mucous membrane of both sides, with deflection of the septum to the left and an angular exostosis pressing upon the inferior turbinal. Adenoids in the naso-pharynx, slight catarrh of the larynx. The epilepsy disappeared completely after the cure of the nasal and naso-pharyngeal lesions. The second case resembles the first. The attacks were more frequent. Cure.

Similar to the preceding are two cases reported by Mr. Barclay J. Baron.* Case 1 was an epileptic lady, aged 35 years, with one nostril packed with polypi, and in the other the inferior turbinal was hypertrophied. The nostril was cleared of polypi, and the turbinals on both sides cauterised. The epileptic fits were at once almost completely stopped. Some time later the fits again became more frequent and violent, and again polypi were removed. The same sequence of events again recurred. After every clearance of the growth from the nose there was marked alleviation of the epileptic conditions, and on reappearance of the growth the fits became more frequent and violent.

Case 2 is interesting in two ways: in the first place, it illustrates the tendency to nasal engorgement at the menstrual epoch; and secondly, the association of nasal trouble with epilepsy. The patient was a young unmarried woman, who had had epileptic fits at her menstrual periods ever since menstruation had begun. She had also nasal obstruction, which troubled her more at the menstrual period than at other times. Mr. Baron found so great hypertrophy of both inferior turbinals that he was able to snare off large pieces of them. The relief from doing this was remarkable, as the girl had no fits for seven or eight months. Then for three months she had one fit at each menstrual period, and as there was still some thickening of the turbinals Mr. Baron proposed to use the galvano-cautery. Lichtwitz † has seen epileptiform convulsions, attended with loss of consciousness, resulting from irrigation of the right sphenoidal sinus, and in a boy of 10 crises resembling *petit mal* were cured after the removal of pus from the sphenoidal sinuses.

Kjellman ‡ (Stockholm) has collected 15 cases of epileptiform

* 'British Medical Journal,' 1896, vol. i, p. 698.

† 'Journal of Laryngology,' vol. xi, p. 160.

‡ 'British Medical Journal,' 1893, vol. i, Epitome, No. 489.

convulsions, which ceased after the cure of the following pathological conditions of the nasal cavities: polypi, foreign bodies, and swelling of the mucous membrane of the turbinated bones.

The cases to which I have directed your attention are reported by observers in different countries, and they all agree in describing cases of epilepsy as originating from various nasal lesions, and that cessation of the epileptic attacks has followed upon cure of the disease of the nose. It is consequently the bounden duty of the medical man called in to treat a case of epilepsy to make a thorough examination of the nose and accessory cavities. The tonsils may also be the exciting cause of epileptiform crises, as shown by a case recorded by M. M. Boulay,* of Paris:—"The patient was a boy, 12 years old, who had suffered for two years from nocturnal crises, with the following characteristics: sudden awakening with anxiety, tingling of tongue, loss of consciousness, and convulsions of tongue, lips, face, and often of the four limbs, with embarrassed respiration and threatened asphyxia, the whole attack lasting five to ten minutes. The child had immense tonsils and adenoids. From the day on which the tonsils were removed the attacks ceased and never returned; the adenoids were removed later."

In the second case of reflex epilepsy to which I directed your attention it is stated that the attacks were always preceded by an olfactory aura. It must be remembered, however, that an olfactory aura does not by any means necessarily imply that the nose has anything to do with the onset of the disease. According to Dr. Gowers, when the auræ are due to organic brain disease, the uncinate gyrus has been sometimes involved. Olfactory sensations are usually of an unpleasant character. During the epileptic attack in the stage of tonic spasm the glottis has been found completely closed, as in other cases of glottic spasm. Anæsthesia of the pharynx and larynx may be met with for as long as two hours after the attack.†

### Hysteria.

The neuromimetic conditions affecting the upper air passages are so numerous that I can only briefly describe some of the most

* 'Journal of Laryngology,' vol. xi, p. 28.

† Löri, 'Die durch anderweitige Erkrankungen bedingten Veränderungen des Rachens, des Kehlkopfes und der Luftröhre,' p. 34.

important. It has been stated that a regular attack of hysteria may be produced by the irritation of certain parts of the nasal mucous membrane, the so-called hystero-genetic zones, and that after the application of the galvano-cautery to these areas the attacks have ceased to occur. Though I have been examining the interior of noses for the last 20 years and have constantly used the probe I have never succeeded in starting off an attack of hysteria. Hemi-anosmia has been met with in connection with hysterical hemi-anæsthesia.

Sensory neuroses of the pharynx are common in hysterical patients. Anæsthesia, hyperæsthesia, and paræsthesia are all met with. It is most important to bear in mind that there may be some underlying condition or reflex cause for these phenomena, and they should only be regarded as of hysterical origin after a careful and systematic examination has been carried out with a negative result. The motor neuroses of the pharynx may be due to spasm or paralysis.

The so-called globus hystericus is nothing more or less than spasm of the pharyngeal muscles.

Hysterical paralysis of the muscles of the pharynx may, by causing dysphagia, give rise to the suspicion of malignant disease, especially if the patient is middle aged. The diagnosis is readily affected by means of the œsophageal bougie, but it is important to use a full-sized instrument, as this often passes much more readily than a smaller one. Anæsthesia of the laryngeal mucous membrane is an occasional manifestation of the hysterical condition. In some cases there is marked hyperæsthesia. Paræsthesia in the form of burning, scratching, tickling, and the sensation of pricking in the larynx are frequently complained of. Of the motor anomalies paralysis of the adductors of the cords is by far the most common of the laryngeal neuroses due to hysteria. It constitutes the well known hysterical or functional aphonia. A marked characteristic of this affection is the suddenness of its onset and the equal suddenness with which it may disappear. On laryngoscopic examination it will be seen that on attempted phonation in some cases the cords fail to approach the median line, in others the cords nearly meet, and again in others, though the cords meet in the middle line, no sound is produced. The laryngeal picture will also vary according to the muscles affected; if the internal thyro-arytenoid muscles are paralysed

there will be an oval chink on attempted phonation; if the lateral crico-arytenoid muscles are paralysed there will be an interval between the whole length of the cords, and if the arytenoid muscle is paralysed there will be a triangular gap at the posterior part of the glottis. Hysterical aphonia is often confounded with hysterical mutism. They are, however, distinct affections. In hysterical mutism, which is rare in comparison with hysterical aphonia, the patient has lost all power of producing the movements necessary for articulate speech.

In some hysterical patients instead of the adductors being paralysed they are liable to spasm, causing attacks exactly resembling laryngismus stridulus in children. The prognosis is usually good; in a young lady under my care, however, the spasm was so protracted that tracheotomy had to be performed to prevent death from suffocation.

A curious condition to which the term inspiratory spasm or perverted action of the vocal cords has been applied is occasionally seen in hysterical persons. In this affection the voice remains normal, but on attempts at inspiration the vocal cords, instead of separating, approximate in a convulsive manner. Sometimes they come in contact and cause grave interference with respiration, at other times they remain in the cadaveric position, giving rise to inspiratory stridor. Another form of spasm is the "barking cough of puberty." A characteristic feature of these motor disturbances of the larynx is the curious way in which they may replace one another; for instance, at one time a patient may suffer from aphonia or perverted action of the vocal cords, and this may be succeeded by an attack of spasm or a barking cough. The question of the existence of abductor paralysis of hysterical origin is one of the greatest interest. Dr. Gowers * admits its possibility and raises no difficulty. He writes: "Paralysis of abduction also occurs in hysteria, although rarely; it is always bilateral," and further on: "It is probable that many cases of so-called hysterical spasm of the glottis have been really abductor palsy." Hysterical adductor paralysis fits in quite well with our knowledge of a similar affection of other voluntary muscles, but hysterical paralysis of muscles which from the hour of birth to the last moment of life are incessantly at work is quite a different matter. Cases of so-called hysterical abductor paralysis are

* 'Diseases of the Nervous System,' 2nd edition, vol. ii, p. 290.

recorded, but I think that they are capable of another explanation Dr. Semon tells me that he has recently seen in consultation a lady patient who had been believed to suffer from purely functional spasms of the larynx, but whose present adviser had detected slowly increasing paralysis of the abductors of the vocal cords. This paralysis on further examination turned out to be due to well-marked tabes, and the spasms which from time to time aggravated the condition were, of course, of the nature of laryngeal crises. If other cases of hysterical abductor paralysis were as carefully examined, some explanation other than hysteria, as in this case, would, in all probability, be forthcoming. There is often considerable difficulty in the differential diagnosis between paralysis of the abductors and spasm of the adductors. One point is that in cases of paralysis the symptoms last longer than in cases of spasm. There is something also in the laryngoscopic appearances which will help the skilled observer. Perverted action of the vocal cords may be distinguished from abductor paralysis by making the patient phonate "ah" for some seconds; the need to respire arises, and the adductors being tired by phonation, allow the abductors to act so that the vocal cords will be seen to open widely.*

In the differential diagnosis of hysteria from other affections it is important to remember that "laryngeal paralysis due to hysteria is double; unilateral paralysis is always of organic origin." †

### Neurasthenia and Melancholia.

The subject of the various reflex nasal neuroses has received much attention of late years, and there has been a tendency, I think, to exaggerate the effect of the various intra-nasal lesions.

As I frequently examine the noses of patients—no matter what their complaint—I have come across numerous instances of deflected septa, nasal crests, and spurs in patients in whom there is no symptom of any nasal or reflex nasal affection. On the other hand, there is no doubt that these same conditions in neurotic or neurasthenic patients would produce symptoms of a

* A full account of hysterical laryngeal motor affections is given by G. Treupel, 'Die Bewungstörungen in Kehlkopfe bei Hysterischen,' Jena, Gustav Fischer, 1895.

† Gowers's 'Diseases of the Nervous System,' 2nd edition, vol. ii, p. 1021.

reflex character curable by local treatment in conjunction with suitable general treatment. Some patients become quite hypochondriacal as to the state of the nose, and are constantly craving for an application of some kind or the other to be made to it. It unfortunately happens occasionally that the very condition for which intra-nasal treatment is undertaken becomes aggravated. The case of a man, 26 years of age, suffering from depression, is recorded.* As there was a moderate amount of hypertrophic rhinitis, the cautery and chromic acid were employed for its reduction. This was effected, but the depression, instead of lessening, became increased, possibly on account of the nerve terminal being included in the cicatrix produced by the cauterisations. Rethi, of Vienna, has cured these neuroses by extirpating the cicatricial tissue which had formed as a result of the treatment. I have recently had under my care a lady, 40 years of age, who, on account of paroxysmal sneezing, in the language of her general practitioner, "suffered many things in the way of removal of bone, cautery, &c." She certainly lost the sneezing, but since it disappeared she has suffered from flatulent dyspepsia, acidity, intestinal catarrh and constipation, accompanied by neuralgia and various sensations referred to the pelvic viscera. She has lost flesh, is terribly depressed, and is a typical example of neurasthenia. She dates all her present symptoms from the time she ceased to sneeze, and attributes them to the shock of the numerous and severe operative procedures carried out in her nose. Her medical man takes the same view, and I am disposed to agree with him.

Dr. Hamilton Potter† has also observed a certain number of cases in which surgical interference in the nasal cavities has given rise to the symptoms of neurasthenia. On the other hand, there are numerous observations in which the cure of the nasal malady has led to a cessation of the neurasthenic symptoms. A remarkable case of melancholia, cured by intra-nasal operation, is reported by Dr. Bosworth.‡ "His patient, a business man, aged 42, was seen in 1891. In 1876 he had suffered from influenza, and afterwards from hay fever, which came on in August of each year. In 1881 he began to suffer from depression, insomnia, and

* 'Revue de Laryngologie,' 1890, p. 774.

† 'Buffalo Medical and Surgical Journal,' January, 1891.

‡ 'Journal of Laryngology,' 1895, p. 591.

melancholia—at first periodically, but, later, constantly, gradually becoming unfitted for business. His eye-balls felt too large for their sockets, and he complained of a twisting feeling between the eyes at the root of the nose. He fell into the hands of various physicians, who at different times operated for varicocele, stricture, and hæmorrhoids, castrated him, prescribed glasses, cut the tendons of the eye muscles, enucleated one eye, ligated the internal pudic artery, cauterised his spine, put a seton in his neck, and circumcised him. He did not improve, and became so despondent as to contemplate suicide. Examination of the nose revealed a complete occlusion of the right side by a bulging of the cartilaginous septum and a myxomatous degeneration of the left middle turbinate, with evidences of ethmoid disease. The nostrils were freed by saw and snare, with great and immediate relief to the aprosexia, and gradual improvement of the psychical symptoms and hay fever. He finally became fully restored to health, and was now attending to business."

## Headache.

Headache is so common a symptom that unless it is very severe or persistent, I am afraid that it is apt to be treated with scant ceremony. It cannot be too often or too energetically insisted on, that to treat a symptom without arriving at the cause thereof is quite contrary to the spirit of scientific medicine, and that the physician who orders antipyrin, phenacetin, or some of the other recently introduced derivatives from coal tar, for the relief of headache without discovering the cause, is placing himself on a level with the quack, who professes to cure every disease with his nostrum. Prominent among the causes of headache is disease of the nose. In fact there is hardly any nasal affection but has headache for a symptom. Hence a careful examination of the nose and accessory cavities should be carried out before headache is regarded as being of a neurasthenic or neuralgic origin. Chief among the nasal causes of headache may be mentioned hypertrophy of the turbinals, giving rise to nasal stenosis; deflection of the septum may also have a similar effect, and, as above stated, almost any nasal affection. Headache may be the only symptom indicative of suppuration in one of the sinuses.

While on the subject of headache I should like to direct

attention to the pain referred to the nape of the neck and the occipital region radiating towards the ear which is met with in some pharyngeal affections. The term "Legal's disease" * has been applied to that form of temporo-occipital headache connected with disturbance in the pharynx and tympanum, and which can be cured by remedies addressed to the pharynx and ear.

Kuhn,† of Würzburg, reports three cases of syphilis of the naso-pharynx, the chief symptom of which was otalgia. This experience points to the necessity of a careful examination of the naso-pharynx in all cases of otalgia. Scheinmann,‡ of Berlin, has written an excellent paper on "Habitual headache as the chief symptom of various nasal affections." He sums up in the following sentences:—

1. Habitual headache finds its explanation in many cases in affections of the nose.
2. In severe and threatening nasal diseases it is often for a long time the only prominent symptom.
3. This knowledge imposes on us the duty in habitual headache of unknown origin of looking out for a local cause in the nose.
4. The presence of a neurasthenic condition does not exclude a local point of departure for habitual headache.
5. The demonstration of the nasal origin of headache has, for the most part, a favourable influence on the prognosis, as nasal therapy gives good and permanent results.

### Meningitis and Cerebral Abscess.

The close proximity of the nasal passages to the base of the brain would naturally lead us to suspect that inflammation of the membranes of the brain and cerebral abscess would result from intra-nasal lesions, and experience has fully confirmed this idea.

Stoerk,§ for instance, has reported six cases of purulent meningitis due to nasal affections. In two cases the starting point was syphilitic disease of the nose, in the remaining four it was

* 'Centralblatt für Laryngologie,' vol. v, pp. 18, 19.
† 'Journal of Laryngology,' 1895, p. 135.
‡ 'Berliner klinische Wochenschrift,' 1893, No. 49.
§ 'Centralblatt für Laryngologie,' vol. xii, p. 131.

caused by acute suppuration of the nose and accessory sinuses. A series of cases of a similar character was reported in the 'British Medical Journal.'* In a case of Bosworth's,† suppuration started in the ethmoid cells and spread to the sphenoidal sinus, death taking place from cerebral abscess.

Mr. Spencer Watson,‡ in his book on 'Diseases of the Nose,' quotes many examples of the connection between intra-nasal disease and meningitis. Great caution must be exercised in the removal of necrosed portions of bone situated above the middle meatus. No force should be employed and the close proximity of the brain must be borne in mind. The use of the galvano-cautery in the nose, and especially in the naso-pharynx, has been followed by meningitis, as also the operation for the removal of adenoid vegetations. New growths, especially those of a malignant nature, may by extension invade the cranial cavity and set up meningitis. One of the dangers of plugging the nostril for epistaxis is the possibility of thereby causing meningitis. I have seen this happen.

An important point in regard to the occurrence of acute meningitis as a result of intra-nasal lesions is that the intracranial symptoms often come on very insidiously, and the nasal disease may be overlooked, the meningitis being attributed to some other cause. I would, therefore, insist on the importance of a routine examination of the nose in all cases of suspected inflammatory mischief of the brain or its membranes.

Dreyfus,§ of Strassburg, has discussed at length the whole subject of diseases of the brain and its membranes as a result of nasal suppuration.‖

### Cerebral Hæmorrhage and Epistaxis.

When called upon to advise in a case of nose-bleeding in a person over 40 years of age, I always think of the remarks made by Mr. Prescott Hewett, in a presidential address given at the Clinical Society in 1878 :—"Severe epistaxis spontaneously

* Vol. i, 1885, pp. 984, 1041, 1095, 1200, 1320.

† 'Centralblatt für Laryngologie,' vol. xii, p. 465.

‡ 2nd edition, p. 302.

§ 'Die Krankheiten des Gehirns und seiner Adnexa im gefolge von Nasen-eiterungen,' Jena. G. Fischer, 1895.

‖ 'Centralblatt für Laryngologie,' xii, p. 458.

occurring after the middle period of life. What apparently could be of so little importance clinically? How little thought, commonly, would be bestowed on nose-bleeding under such circumstances, and yet it is oft-times the little cloud no bigger than a man's hand." I have already pointed out that epistaxis in middle life may be an early symptom of cirrhosis of the liver, I now wish to direct attention to those cases in which it precedes a cerebral hæmorrhage. In these cases it is frequently a symptom also of the granular kidney, the nasal hæmorrhage and the cerebral hæmorrhage being a common result of degenerate vessels and a hypertrophied left ventricle. In some of these cases, moreover, there is what Sir William Gull not inappropriately called renal epistaxis—bleeding from the kidneys.

If, then, a person, after the middle period of life, in whom there is any sign of arterial degeneration, and especially any evidences of a granular kidney, consults you on account of epistaxis, there is need of great caution in the treatment to be adopted. I know of one case in which measures, unfortunately only too effectual, were taken to stop an habitual epistaxis, and in which hæmorrhage into the brain proved fatal some months later. Of course, there are cases of persistent and repeated hæmorrhages from the nose which must be checked at all risk, in order to save life from direct loss of blood; and there is another kind of case in which patients are fretted and annoyed by constantly-recurring small hæmorrhages, preventing them going about: here again local treatment is necessary. If measures be taken to stop the epistaxis—as by the application of the galvano-cautery to the bleeding point—the patient should be kept under observation, the diet should be carefully arranged, the amount of butcher's meat diminished, and alcohol almost, if not entirely, prohibited. Great care should be taken to keep the bowels freely moved, and I have found the old-fashioned combination of blue pill and a saline in the morning most effectual in preventing portal congestion and diminishing arterial tension. Acting on these lines, I have not hesitated to take measures to prevent the recurrence of epistaxis when I considered it desirable.

Time will not permit me to do more than mention that, in connection with cerebral hæmorrhage, different forms of laryngeal paralysis and anæsthesia are met with, varying according to the site of the lesion.

## Concluding Remarks.

I have purposely refrained from saying anything about diphtheria, except when it occurs as a complication of other diseases, because the subject is too wide to be treated in an adequate manner in the time I could devote to it. Moreover, it is somewhat outside the limits I laid down for my own guidance when I commenced writing these lectures. For similar reasons I have not discussed the manifestations of tubercle, syphilis, and malignant disease in the nose and throat, as these are well described in the various text-books on the subject. The plan I proposed to myself was to group together the various affections of the upper air-passages as they may occur in connection with general or local diseases, and also to point out the diseases of remote organs which may arise as a result of affections of the upper respiratory tract. A secondary object I had constantly before me was to accentuate the importance of a systematic examination of the nose, naso-pharynx, pharynx, and larynx.

I am quite conscious that I have omitted many points of interest, but the very abundance of material has rendered the task of selection a difficult one. If, however, I have stimulated any of my hearers to pay more attention to the diseases of the upper respiratory tract and to the use of the laryngoscope, I shall feel that I have in some measure accomplished the task I undertook.

In conclusion, I should like to express my appreciation of the honour the Council did me in requesting me to deliver the Lettsomian Lectures, and I have to thank you, gentlemen, for your courteous attention.

*February 22nd*, 1897.

## TRAUMATIC NEURASTHENIA.

By Victor Horsley, M.B., F.R.C.S., F.R.S.

The object of my writing this paper is to elicit a discussion as to what the cardinal symptoms are, by the appearance of which traumatic neurasthenia can be duly said to exist; further, how far these affect a patient permanently or temporarily, its relation to malingering, and, finally, the best form of treatment to be adopted. Probably no medical condition is more the source of contradiction and dispute, because, owing to the nature of their causation, these cases so frequently come into court, and form the basis of litigation.

### Similarity of General Neurasthenia from Overwork or other Causes, Influenza, &c., with the Traumatic Variety of so-called Hysteria.

It will be seen directly that for the most part the symptoms of traumatic neurasthenia are chronic in character and development, and are exactly similar to those of neurasthenia induced, not by traumatism, but by worry and overwork. In short, as Charcot said, "L'hysterie est une et indivisible."

This latter arises, of course, very chronically, but in traumatic neurasthenia, as just stated, the symptoms may also arise extremely acutely, that is practically from the time of the accident, in which case there is not, as in the chronic condition, a definite latent or incubation period. We may dismiss this important point of differentiation by discussing the acute condition first.

### *The Acute Form of Traumatic Neurasthenia.*

When the symptoms immediately follow the accident, they are undoubtedly mixed with genuine symptoms of concussion, and, of course, in the absence of any anatomical examination it is not correct to say that there may not be some minute lesions; thus, for example, the patient presents the signs of so-called cerebral irritation, *i.e.*, great restlessness, pain in the head, defective

memory, &c. The most striking feature, however, is the temperature. Acute neurasthenia is almost invariably accompanied by pyrexia, pyrexia of a kind which has been termed neurotic or hysterical fever, the first case of which was published by Teale, and other cases since by Hale White ('Guy's Hospital Reports,' 1884). A very marked instance of this occurred under my own observation recently, the patient being the wife of a medical man, who had received a severe shock by falling from a bicycle, and who sustained a blow on the chin and also on the occiput by reason of the machine handle falling upon her. The temperatures were taken with great exactitude, the pyrexia presenting the characteristic feature of suddenly shooting up, reaching even 111°, the patient concurrently becoming quite delirious, the onset of the pyrexia being heralded by visual hallucinations and the patient having the subjective sensation of being intensely hot and the skin burning, the application of cold bringing the temperature down almost as quickly as it rose. Convalescence was secured by over-feeding and gentle massage, though any severe nerve excitation would send the temperature up several degrees. On one occasion a band passing in the street sent it up to 107°. I cannot enter into a discussion of this question, it involves the now fairly accepted view that there are heat centres in the central nervous system, the controlling energy of which is liable to impairment.

We will now turn our attention to the more common chronic form.

*The Chronic Form of Traumatic Neurasthenia.*

In chronic cases of neurasthenia the condition arises some considerable time after the accident, most frequently the interval or latent period is about a week, but may be much longer, *i.e.*, 14 days or more. This fact, which was first pointed out by Charcot, is one, I think, of vital importance in the diagnosis of this condition; whereas naturally much possible error lies in attempting to distinguish between acute neurasthenia and symptoms due to actual laceration or hæmorrhage into the injured brain or spinal cord, no such confusion can exist in the so-often witnessed condition after railway accidents, &c., when the patients for the first two or three days assert that they are quite well, and incapacitating symptoms only gradually develop.

## The Causation of Traumatic Neurasthenia.

Of all causes, undoubtedly the commonest is shock directly applied either to the brain or to the spinal cord, *e.g.*, railway accidents, falls from horses, heavy blows, &c. In addition to such general shock we have actual injuries inflicted, such as :—

(*a*) Injuries of vessels, causing hæmorrhage.
(*b*) Injuries of muscles and tendons, causing rupture of the same.
(*c*) Injuries of bone.

## The Symptomatology of Traumatic Neurasthenia.

The symptoms, as far as the nervous system is concerned, should be arranged according to Dr. Hughlings Jackson's plan on general principles of neurological classification

1. Beginning, therefore, with the highest centres it will be found that although ideation is complete it is nevertheless impossible for the patient to concentrate or apply his attention for more than a brief time. All intellectual work, therefore, is rendered inefficacious by this want of attention, and attempts of patients to force themselves to attend to even pressing business affecting their personal interests seriously, end in failure and exacerbate their condition.

2. As regards the emotions, in practically all cases these patients are emotional and irritable.

3. *Sleep.*—The alterations of sleep are very interesting in detail. The commonest alteration is waking early ; a less common is loss of ability to go to sleep. Dreams are strongly marked, and often nightmare, and rarely even somnambulism. As in the *grande hystérie* of the French authors and the post hystero epileptic state, zoopsia is frequent, and in cases of direct injury to the special sense centres hallucinations of the senses often occur.

4. *Motor Conditions.*—As far as motor power is concerned it is affected in practically three ways :—

(*a*) General paresis.
(*b*) Localised paralyses.
(*c*) Tremor, or spasms, or twitchings.

(*a*) *General Paresis.*—All patients suffering from this condition complain that although able to execute every movement they

nevertheless feel that they cannot do it as powerfully as before. The dynamometer shows that they truly cannot, and that very usually this diminution is more marked on the left side.

(*b*) *Localised Paralyses.*—When in a traumatic neurasthenic there is localised paralysis * it is usually hemiplegia of a limb, most commonly of a lower limb, and almost invariably affecting the left side. A further conditioning fact is that the paralysed limb is generally the one that received the injury or the major effect of the injury. The class of muscles paralysed are those which are termed voluntary muscles as contrasted with the muscles of organic life, and that, although almost invariable, this rule is not without its exceptions. Thus in a very interesting case which I saw of a lady who had been thrown from a horse and sustained a severe bruise, and apparently partial fracture of one rib (sixth on the right side), there was a complete paralysis of the right half of the chest, not only of the intercostal muscles but apparently also of the same half of the diaphragm. During quiet respiration the difference between the movements of the two sides was quite noticeable, but the contrast was naturally most striking when the patient was told to inspire deeply. It then appeared as though the patient was not making an effort on the right side, and had it been a question of grasp or movement of the arm I believe that many would have described it as a deliberate non-performance of the act. But considering that no one can voluntarily expand one-half of the chest only, on making a deep inspiration, it is quite clear that this is a genuinely functional paralysis, and as such a very remarkable and, I believe, almost a unique instance. Under suitable treatment, which we will deal with further, even this paresis will disappear.

A monoplegic diminution of motor power is, of course, very frequently a mere effort of malingering, and the distinction

* I quote from the great work of Paul Richer, 'Études Cliniques sur l'hystéro-épilepsie ou grande hystérie,' Paris, 1881, p. 552, the following passage, because it summarises well the leading facts :—"La paralysie peut intéresser les differents muscles du tronc et des membres. D'après Briquet et Landouzy dont les statistiques concordent, on voit : (*a*) que l'affaiblissement des muscles de l'un des côtés du corps, l'hémiplégie hysterique est extremement commune, puisqu'on la trouve chez la sixième partie des hystériques ; (*b*) qu'elle est trois fois plus fréquente à gauche qu'à droite ; (*c*) que la paralysie est cinq fois plus fréquente aux membres inferieurs qu'aux membres superieurs ; (*d*) enfin elle attaque très rarement les muscles de la face."

between genuine lack of strength and deliberate fraud we will postpone also until we come to the chapter on malingering.

As regards the localised paralyses, although functional paralysis of one limb is common I have never seen, even in severe head injuries followed by traumatic neurasthenia, functional paralysis of the face.

(*c*) *Motor Power, Spasms, Tremors, and Twitchings.*—Tremor is, of course, an important symptom in all disturbances functional or structural, of the nervous system, for this reason it is not surprising that in traumatic neurasthenia it so frequently occurs, being especially produced when the patient is executing some voluntary movement which requires particular attention, and it is exaggerated if the patient thinks that his performance is being watched. In this way it is an instance of the imitation of disseminated sclerosis by functional disturbance.

Spasm and contracture are relatively very common events in "hysterical" cases, as, for instance, hysterical contracture. It is much rarer in traumatic cases than in the so-called idiopathic variety, in which it seems to be fairly common.

The most interesting spasm of this kind is the spasm of the tongue. When that organ is protruded, instead of being pushed over to the paralysed side, the tongue is heaped up in an arched form on the normal side (*e.g.*, the right in a case of left hemiparesis), the organ being somewhat rolled over on its longitudinal axis. A very good drawing of this condition is given in the 'Icon. Salpetriere.'

Dr. Beevor and myself have shown that this movement can be elicited from the cortex of the same side, and this evidence of cortical excitation is found with limb contractions affecting, of course, the opposite side.

5. *Sensory Conditions:*—

Touch.

(*a*) Subjective Tactility.—In cases of general traumatic neurasthenia the patient usually complains of numbness or "pins and needles," or sensation of weight in the limbs, most frequently on the left side. This numbness and formication become very often most marked during sleep, so that the patient wakes up in the condition described as a specific functional disease by Dr. Ormerod ('St. Bartholomew's Hospital Reports') as commonly attacking persons who use the upper limbs very much and consequently get over fatigued therein.

(*b*) Objective Tactility.—On testing the areas affected by the numbness with light touches it is commonly found that the patient does not localise very exactly, but the errors of position are small and further there is some slight diminution to some sense of pain and to sense of change of temperature. In a very severe and long-standing case the condition of anæsthesia may be very marked and even proceed to absolute analgesia. Such a case is, of course, accompanied, it will be understood, by paralysis of other special senses, *e.g.*, hemianopsia, unilateral deafness, &c. It may be noted here that the condition of anæsthesia in traumatic neurasthenia has been put forward as the basis of the motor paresis described above. Where of course the anæsthesia is very marked this is a perfectly possible explanation, according to the principles established by Claude Bernard, and subsequently extended by Mott and Sherrington, but that this is not the cause in the majority of cases is sufficiently shown by the fact that there may be very marked motor paralysis without any change in sensation, as evidenced by objective examination.

6. *The Reflexes*:—

(*a*) The Superficial Reflexes.—The superficial reflexes at first are exaggerated and later on diminished.

(*b*) The Deep Reflexes.—The deep reflexes are constantly and remarkably changed. At first they are notably exaggerated, but gradually become diminished, finally disappearing. Here, too, the change, at any rate at first, is usually left-sided.

(*c*) Clonus.—Ankle clonus is occasionally present, though it was once regarded as being of symptomatic value differentiating between structural injury of the nerve centres and merely functional disturbances. Personally I have only seen it in cases of direct concussion of the spine, *e.g.*, falling down stairs, and unquestionably it has a different character to that seen in instances of actual wound or injury, but it is a symptom eminently worthy of closer study.

7. *Pain.*—This is a most important subject, and must be divided into two parts:—

(*a*) Localisation.
(*b*) Character of the pain.

(*a*) *Localisation.*—This is remarkably constant, and the following are the seats observed to be usually affected:—

Bregma.
Area supplied by the posterior branch of the second cervical nerve.
Area of the sixth dorsal nerve.
The dorso-lumbar junction in the spine.
The lower sacral region.
Ovarian region.

(*b*) *Character of the Pain.*—It is variable according to the seat. Bregmatic pain is almost invariably like a heavy pressure; less commonly, sensations as if the top of the head were opening and shutting are felt.

Pain along the second cervical nerve is an intense aching, sometimes starting in the neck and shooting up to the top of the head, very accurately following the course and extent of the nerve. When severe it is increased by movement, and occasionally patients complain of a curious click which, as they indicate, happens about the region of the atlas. Frequently when the pain begins in the occipital region it passes down the neck to the first dorsal spine, which prominence, with the neighbouring spines, is sometimes stated by the patient to be exceedingly tender.

The region of the sixth dorsal spine is very commonly tender as in many idiopathic neurasthenic cases, and traumatic cases often exhibit the well marked infra-mammary pain on the left side, which will be found to be in the distribution of the sixth dorsal. Extremely rarely it will be found that this infra-mammary sixth dorsal pain occurs on the right side.

The dorso-lumbar junction pain is a sharp, stabbing kind of pain which is most especially made worse on movement, and particularly by a sudden jarring movement communicated to the spine, such as stepping off a kerb suddenly. It is precisely the same kind of pain that occurs in idiopathic cases, how it is produced it is impossible to say, but sometimes the pain is intensely severe, and it may absolutely (temporarily, of course) paralyse the patient and prevent his moving until it is relieved.

A very frequent seat of tenderness on pressure sometimes discovered by the patient, but not as a rule made evident to him subjectively, is the posterior superior iliac spine; pressure in this region, or sometimes a powerful contraction of the erector spinæ will cause pain or marked tenderness.

The lower sacral pain is the least common of the spinal pains, and is a dull aching, exacerbated only by fatigue, and therefore easily distinguishable from coccydynia, sacro iliac, or any other kind of pain.

Ovarian pain needs no description here.

8. *Changes in the Organs of Organic Life :—*

A. Changes in the Circulatory System—

(*a*) Heart.
(*b*) Blood vessels.

(*a*) *Heart.*—The chief change in the action of the heart is functional exaggeration of the rhythm, *e.g.*, palpitation. This is most marked when the patient lies down, and especially so naturally at night. It may be so severe as to shake the bed. The pulse rate, when the patient is quiet, is often up to 100.

(*b*) *Blood Vessels.*—Vaso-motor constriction is very common, leading to coldness of the extremities, frequently ascribed to "feeble circulation," although the pulse rate and blood pressure are apparently normal. The painful areas, on the contrary, especially that of the second cervical, not only feel subjectively hot but are actually hot to touch, and also feel boggy and œdematous, suggesting vasal dilatation.

B. Respiration.—This is often quicker than normal.

C. Alimentary Canal.—As in the so-called idiopathic neurasthenia, atonic dyspepsia is extremely common and requires special attention, leading to gastric dilatation and fermentation if not dealt with early. Intestinal paresis and constipation are frequent, but almost as frequent the exact opposite is seen, namely, what is termed "nervous diarrhœa."

D. Renal System.—The urine shows the most important alterations. Generally the quantity is much increased, and there is a corresponding decrease in the percentage of solids; therefore the specific gravity is notably decreased. This is a valuable objective symptom, which might perhaps be imitated by an astute malingerer, but fraud could be easily detected by suitable watching. The frequency of micturition is notably increased.

### Summary and Analysis of Symptoms.

A survey of the symptomatology of traumatic neurasthenia makes it absolutely clear that everything is explicable by disorder

of the functions of the central nervous system. The difficult point to determine is whether a case is wholly one of disordered nerve function or complicated by actual structural injuries. Undoubtedly in the large majority of cases in which a patient receives a so-called concussion of the spine, the pain in the back is usually considered to be attributable to rupture or violent stretching of ligaments; but while this is perfectly possible, in view especially of the discoveries by Golgi and his pupils of the numerous nerve-endings and nerve-supply generally of ligaments and capsules of the joints, nevertheless it does not account for the persistence of these pains, nor does it account for the pain constantly occurring in the same place in different individuals, and after different accidents. The question, therefore, whether the pain in the back is due to local injuries or is of central origin is not of little importance, and requires decision, because, under the belief that it is caused by local injury, these patients are very often subjected to two inconveniences. Of these, the first, a relatively insignificant one, is treatment by firing: the majority of these patients have the back cauterised with the actual cautery, and, by virtue of the stimulus that this gives to the central nervous system, they for a time undoubtedly feel better, and such improvement is generally attributed to the effect of counter-irritation diminishing a hypothetical congestion of the presumably injured structures. The second inconvenience is caused by a less innocent measure, which is also founded on the same hypothesis, which I venture to think in the majority of cases is wholly groundless: the measure alluded to is that of "supporting the spine." Under this plea the patient is fitted up with a jacket, and is sometimes informed that it is necessary that this jacket should be screwed up at frequent intervals by the surgeon. Apart from the very doubtful character of such a transaction, it need only be pointed out that such apparatus checks the free exercise of the erector muscles of the spine, the full activity of which must be restored if the pain in the back is to be prevented or abolished, and the patient really cured.

To close this point, I would venture to urge that, since (*a*) the painful points (hysterogenic zones of Charcot) in both general and traumatic neurasthenia are practically identical, (*b*) the pain develops at a period in the case when the pains due to contusion are passing off, and (*c*) the back-ache is effectually removed by massage,

exercises, and faradism of the erector spinæ muscles, the pain is probably central in origin, and that counter-irritation should be abandoned.

My experience of traumatic neurasthenia is that no case can be expected to get well if the symptoms are severely marked unless it is treated by the Weir Mitchell method of counteracting ordinary idiopathic neurasthenia. The absolutely essential facts are: (*a*) complete and absolute isolation for at least the first month of the treatment; (*b*) general massage with a special massage of the chiefly affected part for a minimum period of six weeks; (*c*) over-feeding commenced by two days' restricted milk diet. If this line of treatment cannot be followed for any reason, then something can be done by ordinary treatment with tonics, but progress is extremely slow. This consideration opens up a very important question in regard to the treatment of this sort of case in hospital practice, for the general hospitals do not contain isolation wards as a rule suitable for the treatment, and at the same time these cases which one sees in the out-patient room, and which are often called "strained back," &c., of necessity do not improve as they ought to do, because they cannot get adequate treatment.

## Prognosis.

It is commonly but erroneously supposed that these cases of traumatic neurasthenia invariably recover. In the first place, all cases of traumatic neurasthenia, if at all pronounced, are extremely liable to relapse; the patient may remain well for a number of years, but an accident or a shock which would not affect the majority of people is quite enough to revive some of the worst features of the previous condition. Independently of any relapse the symptoms often remain for a long time, even years, the most obstinate in diminishing order of importance being:—

Anæsthesia of special senses.
Pain.
Alteration of the reflexes.
Disorder of the organic functions.

## Malingering.

As regards possible malingering there are two conditions to be thought of:—firstly, malingering by a person who is purposely

inventing symptoms in order to obtain money; secondly, by a person who, by reason of his neurasthenic condition, makes untrue and exaggerated statements relative to his condition.

The first fraud can be discovered in various ways. The individual tries to exaggerate symptoms that he has heard of, especially anæsthesia, and even, as I have seen in one interesting case, the knee-jerk. Alleged loss of localisation of sensation can easily be detected by the proper use of screens, puzzling the patient as to points touched, and obtaining evidence of sensation in parts previously declared to be anæsthetic. Also by suitable suggestion to the patient himself, contradictions can be obtained very readily.

Any deliberate exaggeration of a reflex can, so far as I have seen, always be detected by a proper appreciation of the time interval of a reflex.

The second form of malingering is more difficult, and to properly estimate is often discussed in law courts, the disappearance of the plaintiff's condition being usually foretold to occur at the termination of the case. This, of course, frequently happens, constituting the improvement said to be due to the cessation of anxiety and strain. It can be eliminated during the formation of an opinion concerning the patient's condition by the objective examination of the patient and accurate estimation of the degree of the symptoms actually existing, especially of the severity of the anæsthesia.

On this point it is to be hoped that as far as possible the plan of arranging a general consultation of all the medical witnesses in a case will ultimately become the rule in medico-legal practice.

Mr. Spencer Watson insisted on the importance of distinguishing as clearly as possible between objective and subjective symptoms in these cases. He admitted that the hyperpyrexia was an important symptom, but thought on the whole that the number of the objective symptoms was not as clear as might be wished, a great deal still depending on the description given by patients of various sensations in seeking to arrive at a definite diagnosis. He asked whether it was possible to make out the exact site of the lesions caused by the shock in these cases supposing there to be a central lesion of some kind. The author's cases seemed to point to the fact that these conditions only occurred in persons who were greatly predisposed to neurasthenia. Such patients were originally neurasthenic and the injury only acted as the precipitating cause. Similar injuries were often seen in persons presumably with strong nervous systems in whom no such condition ensued. He had hoped to hear more about the condition of the urine after these injuries, but the author had only alluded to a diminution in the amount of solid constituents—a feature which was common in ordinary hysterical affections. He asked

whether in any of these cases the author had ever met with albuminuria or glycosuria, and as to whether any alteration in the urine had been remarked at the time of the hyperpyrexia. The hyperpyrexia that had been noted in the acute cases was not of much advantage in respect of diagnosis, in view of the fact that many of these cases were not, strictly speaking, acute, but occurred after a more or less considerable interval. He gathered from what the author said that he did not think there was any actual lesion in the brain-substance in cases of traumatic neurasthenia.

Dr. CHURTON (Leeds) said that some fifteen years ago cases were frequently seen at the Leeds General Infirmary which, for want of a better term, were named "miners' neuroses." The nature of these cases remained obscure until it was accidentally discovered that miners very often received blows on the head and spine from falls of coal or stone. Although sometimes completely stunned by such blows they attached no importance to them, and said nothing whatever about them. Enquiries in subsequent cases of "miners' neuroses" invariably elicited a history of injuries of this kind. Referring to the patient who breathed with only one side of the chest, which the author thought could not be done voluntarily, he believed that he himself could breathe with one (the left) side of the thorax, but he admitted that the immobility of the other side might not be absolute. In one of the miners' cases the knee-jerk had been completely absent on both sides, but there was no staggering when the patient stood with the eyes closed. In respect of the changes in the urine, he pointed out that some neurasthenic patients took little food, and the urinary solids would, therefore, be diminished. One case referred to by the author reminded him of that of a man who had fallen six feet, alighting on his head; he was a little stunned, but recovered in half an hour and resumed work, but afterwards had occasional epileptic seizures, and in about six months was brought to the Infirmary with right hemiplegia and motor aphasia. *Post-mortem* nothing could be found by a most careful (microscopical) search to account for the symptoms. He felt convinced that most of the cases now met with after railway accidents were genuine; in some the symptoms were not removed by "compensation"; in others, organic diseases followed. Thus, a gentleman developed spinal myelitis, was paralysed for two years, gradually recovered, and now hunts during the season three days a week. Occasionally, however, exaggeration was shown. Thus, a lady who had been injured, or had sustained a shock, declared that she had entirely lost the sense of smell. On examination she could not, she stated, "smell" ammonia—although no other part of the fifth nerve was anæsthetic—but when a piece of freshly-broken assafetida was suddenly placed beneath the nostrils she at once started back. She was, therefore, advised not to press the claim for anosmia, but to accept a (very fair) compensation already offered for the shock she undoubtedly had received.

Professor HORSLEY, in reply, pointed out that what he had noticed was a diminution in the proportion and not in the total amount of the urinary solids. He surmised that neurotic hypersecretion occurred, thus reducing the percentage of solids owing to the increase in the watery part of the urine. He had never once met with a case in which he had detected sugar or albumen, though he had met with phosphaturia, itself not uncommon in ordinary neurasthenia. He thought the highest centres were most apt to be affected by general shock, and probably the cortex suffered most.

# THE VALUE OF THE ELECTRIC LIGHT CYSTOSCOPE IN REDUCING THE MORTALITY OF NEPHRECTOMY, WITH A LIST OF TWENTY-TWO CASES OF THE OPERATION.

By E. Hurry Fenwick, F.R.C.S.

In reviewing a series of nephrectomies there is but little need to touch upon operative technique. Unless the kidney has been previously explored and drained, or unless inflammatory changes have bound the kidney by tough adhesions to the neighbouring vessels and viscera such as the vena cava, the gut, liver, or spleen, there is nothing difficult or noteworthy about the operation. Nor is it a question of which route should be followed to gain access to the kidney. Such should not be allowed to occupy the attention of this Society, it should be, rather, the means at our disposal of obtaining accurate knowledge in deciding whether a kidney should be removed or not, also as to which kidney should be ablated, and as to whether the companion gland will be able to bear the stress of the work thrown upon it after its fellow has been extirpated.

In bringing the results of 22 cases of nephrectomy before this Society, I should like to draw renewed attention to the value of the electric light cystoscope in rendering the surgery of the kidney more precise and in reducing the mortality of the operation. Although only educated hands and eyes can successfully catheterise the ureters of either sex, yet the cystoscope is able to be used after a little practice by any operating surgeon sufficiently well for the purposes of ureteral inspection. It is admitted that those cases which mainly swell the fatal list of ablations of the kidney are those of advanced tuberculous and malignant disease of that organ. Also, that if we could attack and remove these diseases in their earlier stages, the mortality of nephrectomy would probably be little more than half of what it is at present. Few surgeons care to operate upon a kidney which is insensitive, painless, and unenlarged, yet in the very earliest stages of primary tuberculous disease of the kidney and primary malignant disease of the kidney, that organ is often insensitive and cannot be felt, or does not appear to be larger than normal, the only indication of the disease being perhaps a vague aching in the kidney and the

appearance of blood or pus in the urine. It is admitted that this is the time to interfere if at all; we need only to be sure of the side. The cystoscope, if rightly used, enables us to detect from which ureter the hæmorrhage or pus is issuing, and will at the same time also declare the bladder to be implicated or the reverse. I pointed this out in 1890, when criticising the influence of the Nitze method upon our knowledge and treatment of urinary disease, but I waited until I had completed 100 operations of all kinds upon the kidney to sustain this contention.

There must, however, be no misunderstanding about what ought to be considered a *judicious* cystoscopy. It should be done with a perfect instrument in a clear medium and with a skilled hand backed by an educated eye. Rightly used, the cystoscope is of the utmost value; carelessly employed, it is worse than mere trifling, it is meddling. It would be better to explore both kidneys, rather than damage both kidneys by those ascending septic changes which are so easily induced by washing out the bladder and burning it with the cystoscope.

The washing necessary for cystoscopy has a death-rate of its own,* and although the cystitis, ascending pyelitis, even the fatal pyelonephritis set up by this procedure may not be recognised or admitted as due to the interference by a blind or a biassed operator, yet such distressing sequelæ do appear and more frequently even than is supposed.

It is commonly asserted by surgeons who use the cystoscope very occasionally, that they have never even caused cystitis by its use. Such statements need not be accepted as reliable. They are merely evidences of limited experience or clinical prejudice. Introduction of any medium, however aseptic, into the bladder, other than the natural urine, causes visible congestion of its surface. In most instances the next stage—that of slight catarrh —is also reached. This is evident from the appearance of pus and micro-organisms in the urine previously noted as "sterile."

In the majority of cases when the bladder is able to evacuate its contents, or where the catheter is used, no harm results, and the bladder recovers in a few days its normal health. This is

* The more I cystoscope in the patient's own urine, and the less I wash out the bladder, the better are my results. Of course if there is blood or pus the bladder must be thoroughly washed out before the cystoscope can be used. In this case I do not care to cystoscope unless I am allowed to start there and then, upon any renal or vesical operation that is necessary.

obvious in litholapaxy, which is a much more distressing operation for the bladder than mere washing. But in a few cases an habitual state of *bacteruria* is induced, and turbid urine * is subsequently passed. Two vesical diseases in their advanced stages appear most prone to resent washing and manipulation: these are tuberculosis and soft carcinoma. If there be deposits of tubercle in the genital organs, or if the prostate or bladder base, as felt per rectum, be obviously infiltrated with new growth, it is useless to cystoscope, it is merely adding to the sufferings of the patient, and the knowledge gained is generally unimportant. With these few and not unnecessary remarks, I venture first to allude to these ureteral appearances which are of value in determining whether the kidney ought to be interfered with in patients who do not suffer from renal or ureteral pain.

*The Ureteral Orifice.*†—In tubercle, localised to the kidney and ureter, the appearance of the vesical orifice of the latter is generally twofold :—

A. *Circumureteral Petechiæ.*—If the disease is "descending" the lips of the opening are puffy, and the mucous membrane around it is spotted with isolated minute red extravasations. If to this appearance is added evidence (obtained by the microscope and by inoculation), of tubercle in the urine, there are sufficient grounds for the exploration of the kidney—other considerations, of course, being favourable.

Meyer, of New York, lays, I believe, great stress upon this appearance. Unless, however, tubercle is found in the urine, a mistake may arise, for an almost similar injection is seen in some cases of descending renal calculus.

Thus I noticed circumureteral petechiæ in a male, aged 24, who had complained of an aching pain in the right side for three years. He had passed blood, and had had typical colics. There was no tubercle found in the urine, and yet I hesitated to give the diagnosis of calculous colic, because evening rises of temperature, 99–100°, slight frequency at night, pain in the penis at the completion of the act of micturition, and sudden arrest of stream due to prostatic pain, had been observed. His family history was

* This urine can be recognised by the smoky or shot-silk-like appearance it assumes when shaken in a bottle. The optical result is apparently due to the movement of rod-shaped and other bacteria, with a few pus cells.

† It is to be remembered that in tubercle the orifice is not infrequently dragged out of place and buried beneath succulent mucous membrane.

markedly phthisical, and his aspect decidedly of the tuberculous type. On examination of the bladder there was no stone, and I could see, surrounding the right ureteral orifice, seven bright punctiform hæmorrhages. I diagnosed descending tuberculosis; but I was wrong, for the stone subsequently entered the bladder, and I crushed it. Six months later all trace of the circumureteral injections was gone.

It is as well, then, in our present state of cystoscopic knowledge not to rely too greatly upon circumureteral petechiæ, unless the microscope reveals tubercle in the urine.

B. *Caked Patulous Orifice.*—I believe, in most cases of primary tuberculosis of the parenchyma of the kidney, that the organ is enlarged, and may, as time goes on, be felt below the ribs. If tubercle is found in the urine, if no bladder symptoms are noticed, and if pain of a constant type is felt in the renal region, the enlarged organ may be reasonably diagnosed as tuberculous, and the disease as primary and localised. In certain cases this enlargement of the kidney does not take place, for the mucous membrane of the pelvis and ureter are affected primarily. The channel of the ureter is thickened, gets obstructed either with slough or "dirt stones," and after a variable period of renal pain the organ is transformed into a caseous sac, it ceases to secrete urine, and pus only escapes along the tortuous, thickened conduit into the bladder. Meanwhile the other kidney has enlarged and become movable.

We realise at once how easily a disastrous mistake might be made if we went on the principle that all tuberculous kidneys were enlarged. We should, on this premise, inevitably remove the healthy gland in a certain proportion, and leave the useless. I believe certain of the cases reported as dying abruptly of suppression after nephrectomy for tubercle of the kidney has been the result of a mistake like this. But the cystoscope enables us to escape this pitfall.

When the ureter and pelvis are primarily affected its vesical orifice undergoes, in course of time, a distinct and striking change. The opening becomes patulous, and as large as the circumference of a small pea, its edge is sinuous and sharply cut, appearing as if it was infiltrated with yellowish-white wax.* The change is so

* In my notes of cases I call these "golf holes," as they are so sharply cut and so patent.

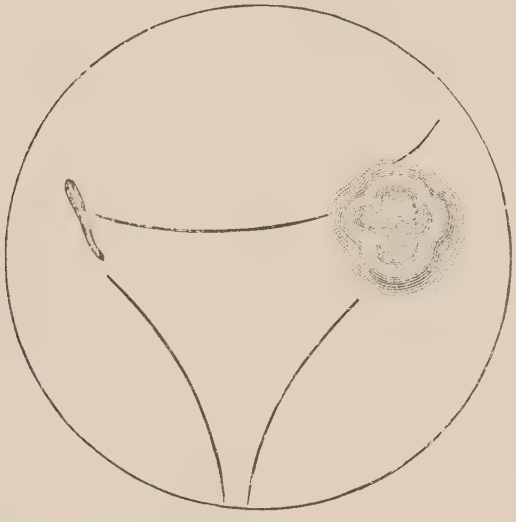
obvious that the side in which disease is active can be at once decided upon. I have seen many dilated ureteral orifices leading to non-tuberculous kidneys, such are smooth and soft though often widely dilated. So smooth and round are some of these latter that a suspicion is raised that a saccule or small hernia is being looked at. They do not, as far as my experience goes, assume that sharp-cut, inlaid edge of a tuberculous ureter. Several times in my work a practitioner has found a large movable kidney, and, believing that this was the cause of the vesical symptons, has insisted that the kidney should be stitched or ablated. I have, on more than one occasion, shown by the cystoscope that the large movable kidney was the healthy one, merely enlarged by doing duty for its crippled fellow, for its ureteral orifice was healthy, and the ureter of the diseased and useless kidney was inlaid with ivory-like material, and the ureter an open toneless channel.

Here is a case in point. A lady, aged 32 (Case 21), was brought to me by Dr. Delamotte, of Staines, on January 7th, 1895, with a two years' history of symptoms pointing to tuberculosis of the bladder. I gave this diagnosis, but as her uterus was misplaced I requested a gynæcological opinion concerning the influence of the uterus on the ureter. The patient returned two years later; a gynæcologist had been consulted, and having pooh-poohed the diagnosis of tuberculosis, had been actively treating her womb. Latterly, finding her urine contained albumen and blood, and that her *right* kidney was enlarged and movable, this gentleman had diagnosed movable kidney, and had decided to perform nephrorraphy. I was then (January, 1897) asked for my opinion, and obtained permission to cystoscope. The left ureteral orifice (Fig. 1) was patent and obviously tuberculous. The right was healthy. Tubercle being found in the urine, I removed the *left* kidney, which proved to be a mere collection of tuberculous abscesses and caseous material with "dirt stones." The lady recovered, the wound healing by first intention. The specimen was examined by Mr. Targett, and reported to be tuberculous. Had I stitched the large right kidney, as was suggested, the result would have been futile if not fatal.

I am sure that if the cystoscope cannot be used the clinician should be guided by the seat of the pain. If the ureter is affected there is always constant pain in the corresponding kidney, and often distressing colics of the same side are experienced. This suffering, as the kidney becomes useless, may subside and even

be forgotten, so that it is as well to cross-examine as to the history of colics or fixed renal pains. Additional difficulties arise in the irritation set up in the pelvis and ureter by "dirt stones," a subject on which I may not touch, beyond pointing out that "dirt stones" are tissue *débris*, coloured black by blood and incrusted with lime phosphates, and not true calculi. Usually they are in the form of plates, curved and twisted in various ways.

Fig. 1.



Cystoscopy of tuberculous left ureteral orifice.

*The Ureteral Efflux.*—Next in order of diagnostic importance to actual change in the lips of the ureteral orifice comes the ureteral efflux. The efflux of pus in pyonephrosis or pyelitis may vary in its consistence from semi-solid to fluid. As far as my experience goes, the thick, curdy material which is pressed out of the ureteral opening in abscess of the kidney is rare. When it is seen, its appearance is so striking as to leave no question as to the site or the seriousness of the disease; thick, curdy material denoting great pressure, and absence of proper urinary secretion. The following case will illustrate this point:—

F. D., aged 33, had been treated by a "specialist" for an urethral discharge which had appeared suddenly, and, as the patient asserted, causelessly. The diagnosis of gonorrhœa was pertinaceously adhered to, but the prescribed injections did not remove the urethritis, nor had the medicine any effect upon the extraordinary *malaise* which the patient experienced. I was asked to see him, and noticed that his urine was acid, S.G. 1024,

that it contained a quarter pus and was not tuberculous, that there was no pain, and no subjective urinary symptoms. His temperature was 100·5°. The left kidney felt slightly enlarged. He sweated profusely at night, and had lost one brother from phthisis. I placed him at rest and the pus suddenly ceased. It reappeared on his getting up again, but in lesser quantities. The temperature rose each evening, but the severest questioning could only elicit the statement that he only felt "an occasional windy feeling in his left loin."

On cystoscopy, I and several others saw a thick white pipe of inspissated pus being forced out of the left ureteral orifice. This was just like soft maccaroni being pressed through its

Fig. 2.

Cystoscopic diagram of soft putty-like pus being pressed from left ureter.

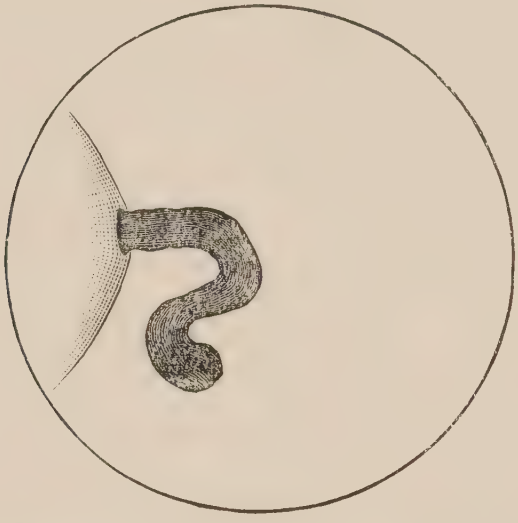
gauge. As it slid down the bladder wall,—for the pelvis was raised, it arranged itself in coils like the rolls which treacle forms when dropped from a spoon (Fig. 2). I cut into the left kidney and released a corticular abscess, containing 6 ounces of thick dirty yellow fœtid pus. At the bottom of this abscess was the rounded opening of a deep calyx, and in the latter a curved "dirt stone." *

As regards fluid pus even an unpractised eye can detect the swirl of milky fluid, which is so different to the glycerine-like jet of healthy urine.

* Are these calcareous plates analogous to the fibroid cretaceous deposits found in healed phthisis? Are they evidences of chronicity, of attempts at healing?

*The Efflux of Blood.* — A jet of blood, or the extrusion of a clot from the ureteral orifice, is so readily recognised that I do not further allude to its value as an indication of a renal source, except to point out how important it is in profuse renal bleeding, after middle life, to locate the side as soon as possible and to explore the kidney. Most cases of profuse hæmorrhage from the pelvis of the kidney, after the age of 50, are due to primary carcinoma of that organ, and though the course of the disease is relatively slow, it is important, if good results are to be obtained by removal of the malignant mass, to attack it as early as possible, and before metastasis or exhaustion has super-

Fig. 3.



Cystoscopic diagram of blood clot being forced out of right ureter.

vened. When the kidney is enlarged and feelable, the time for its removal has probably gone by, for nephrectomy cannot then remove those minute metastatic deposits which are so favoured in their dissemination by distension of the capsule. The surgeon is often hampered, moreover, by not knowing which ureter is supplying the blood, for a certain proportion of patients in their early stages do not have clot colic, or the pain of capsular distension which would be a guide to the side diseased. Hence the cystoscope is of the utmost value. The following cases will illustrate :—

Dr. Boissier, of Banbury, brought me a gentleman, aged 59 (Case 17), with hæmaturia. Symptomless, intermittent, and profuse hæmaturia had been present for nine months, and it was expressly stated that there had been some *left* renal colic. No renal swelling could be made out. I cystoscoped, having obtained

permission to do what was thought advisable after the examination. The bladder was free, but a jet of arterial blood was seen issuing from the opening of the *right* ureter, then a clot (Fig. 3) was forced out of the orifice as if from a mould, and its exit was succeeded by another jet of blood. The lip of this orifice was stained with blood. The left ureteral opening was healthy.

Fig. 4.

Papilliferous carcinoma of middle third of unenlarged kidney.

Dr. Boissier was certain that the renal colic was left-sided, and yet the hæmorrhage was from the right. I had such confidence in the cystoscope being correct that I removed the right kidney at once, although it did not feel enlarged. The growth occupied the middle of the gland (Fig. 4), and on questioning the patient subsequently we found that he had misled us as to the side in which the colic pain had really been felt. The patient remains well, October, 1897.

The next case which I wish to quote is one of the rarest forms of renal growth—villous growth of the pelvis. I was requested by a well-known London surgeon to cystoscope a gentleman, aged 70 (Case 6). He had suffered from hæmaturia of a profuse type for two years. It was accompanied by oxalate of lime crystals in the urine, but no symptoms pointing to the source of the hæmorrhage had been noticed. He had had various opinions. Oxalate of lime stone in one or other kidney, growth of kidney (Sir W. Roberts) and villous growth of the bladder ranked chief among the diagnoses. He had been cystoscoped and sounded, and generally overhauled, but the case still remained obscure, and though he was willing to have both kidneys and bladder cut into if he could be freed from the debilitating hæmorrhage, there was a natural unwillingness on the part of each surgeon who was consulted to go on the quest of the hæmorrhage which might after all emanate from a prostatic vein. On passing the cystoscope it became evident that the right ureter was emitting swirls of bloody urine, and the surgeon who had invited my co-operation cut down on the right kidney to explore it. The pelvis appeared free, no hardness could be felt at any point, and the surgeon deemed it advisable to stitch up the wound. The hæmorrhage continued unabated, and though no hint of actual blame reached me it was palpable that the failure of the operation was placed to the credit of an inaccurate or careless cystoscopy. The patient again went the round, and after two years I was again asked to see him. The patient was now wasted, bleached and exhausted, but his courage and calmness were remarkable. He explained to me that with but slight and rare intermissions the hæmorrhage had not ceased for two years, and he mentioned the fact that pieces of villous growth had been discovered in his urine. As villous growth of the bladder is comparatively common and that of the kidney very rare (eight cases in literature), I felt some uneasiness about my previous diagnosis of right renal hæmorrhage. Obtaining permission to nephrectomise, I again cystoscoped. Again the instrument revealed hæmorrhage issuing from the right ureter. I therefore turned the patient over on to his side and removed the right kidney. Its pelvis was filled with villous growth, its cortex was honeycombed with cavities lined with the same growth (Fig. 5). It was examined by Mr. Targett and reported as a villous growth. The hæmorrhage at once ceased, and in a few weeks the patient was about.

A year subsequently he returned to me passing blood, and expressing himself as fearful that the left kidney had become attacked, or that the bladder had become similarly diseased. To my surprise the cystoscope revealed blood coming again from the right ureter. Shortly before this Dr. Hebb had shown at the Pathological Society a specimen of villous disease of the kidney, the corresponding ureter of which was studded with secondary splashes of villous growth, implanted apparently by the urine

Fig. 5.

Villous growth of pelvis and dilated calyces of kidney.

stream from the original source. It struck me at once that I had to deal with an ureter containing one or more villous tufts secondary to the original disease. I advised resection of the entire ureter. I found, however, the ureter below the pelvic brim was healthy, and that only one growth existed. I resected the canal, therefore, down to the crossing of the iliac vessels. The character of the growth was similar to that found in the kidney. Fig. 6 represents the specimen. There was an uneventful recovery.

The last case I wish to mention is one in which the kidney was removed eight weeks after the onset of the hæmorrhage. Mrs. G. aged 32 (Case 18), introduced by Mr. P. Howse. She had been feeling slight pain across the loins, which was worse in the right renal region, when suddenly the urine became coffee-coloured. When I cystoscoped the bladder was free, and the right ureteral orifice was natural. The right kidney was ablated, and a

Fig. 6.

Villous growth of upper part of ureter, the lower part being free.

malignant adenoma was found bulging from the anterior surface (Fig. 7). She made a rapid recovery.

I have hitherto quoted successful cases only, but cystoscopy is not always easy or without its failures. You will permit me as a slight corrective to the foregoing cases to quote two others, for these will at the same time illustrate the necessity for an educated knowledge of the cystoscope.

Dr. Little, of Nelson, Lancashire, sent me a patient who had been diagnosed to have a tuberculous bladder. On cystoscopy I saw a prolapse of the right ureteral orifice. Crowning the summit

of this tumid ring of mucous membrane was a tuft of villous growth. I at once removed the prolapse suprapubically through a small caisson. On thinking over this case afterwards it flashed across me that I had not verified the cause of the prolapse. In 1889 I had laid it down as a general rule that prolapse of one ureter meant irritation of the same channel. I therefore returned to the patient and examined the ureter per rectum, and found a stone had lodged in the right ureter two or three inches from the bladder. By dissecting between the rectum and bladder through

Fig. 7.

Malignant adenoma of kidney.

a small transverse perineal opening I was able to reach and remove this calculus, the size of a small apricot stone, and very like it in appearance. There was an uninterrupted recovery.

Dr. H. H. Taylor, of Brighton, sent me a patient with profuse hæmaturia. I saw and removed a villous growth from the right ureteral orifice. A year later he consulted Mr. Knowsley Thornton for right renal pain, a symptom which, prior to my operation, had not been complained of. A calculus was diagnosed to be present in the kidney. Nephrotomy was performed by this surgeon and a carcinoma discovered. The kidney was removed, but the patient

died of uræmia on the third day. Here, an unimportant villous growth had been removed leaving behind the real source of the disease—a renal cancer. The cystoscope had been correct but had not indicated the proper treatment. There is some excuse, for I had encountered one of those rare cases in which a renal carcinoma irritates and infects the ureteral orifice and produces at that spot a pure villous papilloma. I would refer those who are interested in malignant growth affecting the bladder by way of the ureter, to my work on 'Tumours of the Bladder' (Fasc. 1, pg. 13), where this and other cases are quoted.

The cystoscope, then, enables us to eliminate extensive tuberculous disease or malignant growth of the bladder, both of which complications are contra-indications to radical operations on the kidney. It also determines the kidney against which the exploration has to be directed, and it discloses the fact that the other ureter is working healthily or the reverse. With this knowledge, added to that obtained by carefully considering the other clinical evidence, we can interfere with judgment and decision. I believe the low death-rate * I have had is partially due to the care taken in considering the stress resistance of the kidney which it is proposed to leave behind after nephrectomy for it will be seen that whether the cases which I have operated on were septic or aseptic has made but little difference—*vide* list. In 22 cases I have had two fatalities. Of these one was a cystic kidney which I explored for calculus (Dr. Stenson Hooker's case). The kidney became at once inflamed, why I do not know, for I was scrupulously aseptic. I was forced to remove it after three weeks. The patient lingered on for weeks with a hectic chart and ultimately died. Although his death ought really to count as one due to nephrotomy, yet, as the major operation was carried out,

* Death Rates. Mr. Thornton has published a death rate of 14 per cent. over the series of kidney operations, my own is 9 per cent.

Death rate in Nephrectomy :—

| | |
|---|---|
| Gross .. .. .. .. .. | 44·6 per cent. |
| Brodeur .. .. .. .. .. | 44·4 „ |
| Czerny .. .. .. .. .. | 44·4 „ |
| Morris .. .. .. .. .. | 30·4 „ |
| Tait .. .. .. .. .. | 18 „ |
| Jacobson .. .. .. .. | 17·3 „ |
| Hurry-Fenwick .. .. .. .. | 9 „ |
| Schede .. .. .. .. .. | 5·9 „ |

the fatality is included in the list of nephrectomies. The second fatality occurred in my first case of cancer of the kidney. The patient was sent me by Mr. Hall. The carcinoma was the size of a walnut, and projected on to the pelvis of the organ, causing profuse hæmorrhage. I saw the ureteral efflux of blood with the cystoscope. On removing the kidney I had a very sharp hæmorrhage from a large aberrant vessel which entered the upper end of the kidney, and hence was not included in my pedicle ligature. It was torn through in separating the organ. I rapidly ablated and packed with sponges, but the patient never recovered from the shock and died a few days after. Had he lived I am sure the case would have been satisfactory evidence of the value of early ablation, for I operated three months after the onset of a very profuse hæmaturia.

*Mr. Hurry Fenwick's Cases of Nephrectomies.*

| No. | Initial. | Age. | Medical Attendant. | Diseased Condition. | Result. |
|---|---|---|---|---|---|
| | | | SEPTIC. | | |
| 1 | C. ... ... | 24 | Dr. Percy Kidd ... | Enormous pyonephrosis... | Cured. |
| 2 | B. ... ... | 44 | London Hospital ... | Left calculous pyonephrosis. | ,, |
| 3 | D. ... ... | 36 | Dr. Welsford, of Tiverton. | Right calculous pyonephrosis. | ,, |
| 4 | C. ... ... | 50 | Dr. Fitzgerald ... | Right pyonephrosis ... | ,, |
| 5 | Miss W. ... | 28 | Dr. H. W. Webster ... | Pyonephrosis ... ... | ,, |
| 6 | G. W. ... | 70 | Dr. Robb ... ... | Pyonephrosis and villous growth. | ,, |
| 7 | T. ... ... | 54 | Dr. F. W. Foott, of Enfield. | Right pyonephrosis ... | ,, |
| 8 | S. ... ... | 26 | St. Peter's ... ... | Inflamed white kidney ... | ,, |
| 9 | H. ... ... | 45 | ,, ... ... | Right calculous pyonephrosis. | ,, |
| 10 | J. ... ... | 36 | Dr. Stenson Hooker, of Hastings. | Cystic kidney and nephritis, due to operator. | Died eventually of septicity. |
| 11 | B. ... ... | 33 | Dr. A. Brown... ... | Septic tubercular pyonephrosis. | Sinus left. |
| | | | ASEPTIC. | | |
| 12 | H. ... .. | 35 | Mr. Waren Tay, Dr. Sutton. | Enormous hæmo-hydronephrosis. | Cured. |
| 13 | H. ... ... | 19 | Dr. Percy Kidd ... | Calculous hydronephrosis | ,, |
| 14 | T. ... ... | 37 | Dr. Samuel Fenwick | Advanced hydronephrosis | ,, |
| 15 | H. ... ... | 46 | ... ... ... | Carcinoma, lower end ... | Healed rapidly. |
| 16 | D. ... ... | 54 | Mr. Hall ... ... | Carcinoma of middle ... | Died of shock. |
| 17 | B. ... ... | 59 | Dr. Boissier, of Banbury. | Papilliferous carcinoma... | Healed rapidly. |
| 18 | Mrs. G. ... | 32 | Mr. P. Howse... ... | Malignant adenoma ... | ,, |
| 19 | Mrs. C. ... | 50 | Mr. Jekyll ... ... | Carcinoma of a dilated calyx. | ,, |
| 20 | K. ... ... | 35 | Dr. Netherclift ... | Tubercle ... ... ... | ,, |
| 21 | Mrs. R. ... | 31 | Dr. Delamotte, of Staines. | ,, and stone ... | ,, |
| 22 | J. ... ... | 34 | Dr. Atkinson Canton. Dr. Raven, of Broadstairs. | ,, ,, ... | In progress. |

22 cases; 2 died.

The Vice-President in the chair (Mr. C. B. Lockwood) thought the cystoscope was coming into use by general surgeons just as the ophthalmoscope was now generally resorted to by them to assist in a diagnosis. He agreed with the author as to the importance of using it when there was a doubt as to which kidney was affected. He referred to a patient at present under his care who passed renal calculi, but curiously enough without pain. On one occasion they had seen with the cystoscope that the mouth of the right ureter was red and inflamed, which appeared to justify the assumption that there was a deposit in the right kidney, and he surmised that she would have to be operated upon, as she was deteriorating so rapidly. In another case he had seen pus exuding from the right ureter, thus determining the site of the affected kidney. That very day he had discovered a villous growth in the bladder by the aid of this instrument. He had used the cystoscope a great number of times, and had often seen it used without a mishap of any kind. He said he was not prepared to state offhand that he had seen cases of tubercle of the bladder cured by suprapubic cystotomy, but he had certainly seen cases very much improved by that operation. He expressed surprise that the author with his large experience should have spoken so emphatically as he had done against intervention in this class of cases, for he was himself under the impression that small ulcers were improved by scraping them after the bladder had been opened above the pubes.

Mr. G. Turner endorsed what the Vice-President had said about tuberculous ulcers of the bladder. He, too, thought he had seen cases of ulceration of the bladder presumed to be tuberculous, which had derived marked benefit by suprapubic cystotomy and scraping, and he mentioned one such case in a railway guard which he thought was certainly tuberculous. He had done a suprapubic cystotomy and scraped the ulcer, and the patient had entirely recovered and had since remained in good health.

Professor Horsley asked whether the author had ever found it necessary to adopt the technique of Mr. Knowsley Thornton, who incised the abdominal wall from the front before making a lumbar incision. He added that it would be interesting to know if anyone now ever found it necessary to adopt this procedure. He said he had twice operated for tuberculous ulcer of the bladder, but he was fain to confess that he did not think the patients were really relieved thereby.

Mr. Hurry Fenwick, in reply, said there were tuberculous ulcers and tuberculous ulcers. When the ulcer was small and single it was a delicate question to decide whether it really was tuberculous or "solitary." A solitary ulcer was often "simple," but one did meet with vesical tuberculosis of a very chronic type, and the chronicity was expressed by a solitary ulcer. If an ulcer were single it would be a favourable case for suprapubic cystotomy and the curette, but these single ulcers often got well merely by giving maltine, cod liver oil, and sea air. When they healed they left a puckered scar. When the tuberculous ulceration was extensive, and when, as was usual, the mucous membrane was infiltrated on the posterior wall, suprapubic cystotomy did very little good. Even prolonged drainage in these cases did no good. With regard to Mr. Thornton's double method, he observed that all operators had their fancies and even their fads, but personally he felt that the fewer incisions one made the better was it for the patient. All that was needed to be done could be done by a posterior incision, unless the tumour was very large, and then no surgeon would hesitate to operate through the peritoneum. In cases of buried cortical stone he did not think it was possible to detect

them by an anterior incision any more than it was possible to detect them with the finger through the lumbar incision, and most stones were discovered on the posterior surface in the lower third of the kidney at the junction of the pelvis and the cortex. If absolutely necessary—for instance, if the kidney could not be found—the peritoneum could be opened through the lumbar incision and the fingers or hand passed in. He had not had any need to resort to the abdominal incision for calculus, and he had had 29 cases.

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*March 8th*, 1897.

## REVIEW OF THE OPERATION FOR EXCISION OF THE KNEE, TOGETHER WITH AN ACCOUNT OF A NEW PROCEDURE—OSTEOPLASTIC EXCISION OF THE KNEE.

By C. B. Lockwood, F.R.C.S. Eng.

In this communication I propose to describe an operation for excision of the knee which I have performed on several occasions since 1889.* Although the operations are not numerous, yet they are enough to show that the proceeding is quite practicable. Moreover, I hope to prove that it has certain advantages over the usual operation. At the outset it is to be understood that it is not to be done in every case of tuberculous arthritis of the knee. On the contrary, each should be treated on its merits, and with regard to the kind and degree of the disease, and to the condition and environments of the patient. Thus, during the past ten years I have treated tuberculous arthritis of the knee by rest and local applications, by drainage, by arthrectomy, by the ordinary excision, and by the operation which I am about to describe. The last was done upon cases of progressive tuberculous arthritis with pulpy synovial membrane and ulceration of cartilage, but with little caries or displacement of the ends of the bones. Before deciding to operate every effort was made to allay the disease by rest and local applications. But it is important not to delay until sinuses have formed. In the last case a sinus had formed, and the operation was followed by a severe outbreak of septic inflammation. As with most new attempts, errors have been made

* Brigade Surgeon Lieut.-Colonel Macleod has kindly drawn my attention to the fact that he performed a similar section of the bones on March 30th, 1887. *Vide* 'Indian Medical Gazette,' vol. xxii, pp. 134 and 209.

and failures have occurred. All of these will be clearly pointed out for the guidance of anyone who may be encouraged to imitate my example.

The method of excision which I always see performed, and which is described by all our more recent writers,* has certain faults which can be overcome. To these are attributable some of the ill results by which it is not infrequently followed. For instance, during the last few years I have had three times to remove wedges of bone to straighten limbs which had become flexed and rotated after the knees had been excised by the ordinary method. That operation is briefly as follows:—A flap of skin and subcutaneous tissue is lifted from the front of the knee by a curved incision; then the capsule and the internal and external lateral ligaments are divided and the patella is taken away, with division of its ligaments; next, the crucial ligaments are cut, and a slice or slices of the articular ends of the femur and the tibia sawn off; and, in addition, the synovial membrane is taken away. Abroad, Von Esmarch,† Von Bergmann,‡ and others,§ describe the same operation, as do also Ollier,‖ of Lyons, and Farabeuf.¶ A number of others have been described, but as a rule they only differ from one another in the way in which the joint is opened or in the treatment of the patella. Farabeuf** gives no less than six different incisions, and others might be added. However, no operation seems to enjoy the same repute as that which I have just sketched, and called the usual operation.

With regard to the ordinary operation I would remark that the mere skin incision is of small importance, provided it fulfils the first of the principles upon which the operation is founded, and therefore permits the whole disease to be removed. Sometimes I have used the so-called antero-internal vertical incision of Langenbeck,†† because it seemed to give better access to the

* Jacobson, 'The Operations in Surgery,' 3rd edition, 1897, p. 184, *et seq.* Treves, 'A Manual of Operative Surgery,' 1891, vol. i, p. 684. Marsh, 'Diseases of the Joints and Spine,' 1895, p. 331.

† 'The Surgeon's Handbook,' 1888, p. 317.

‡ 'Operations-Cursus,' Berlin, 1892, p. 170.

§ 'Allgemeinen und speciellen Chirurgie, Pitha und Billroth,' 1882. Article by Lossen, p. 31.

‖ 'Traité des Résections,' 1891, tome iii, p. 206, *et seq.*

¶ 'Précis de Manuel Opératoire,' p. 775.

** *Loc. cit.*, Figs. 592 to 595.

†† *See* Farabeuf, p. 791, Fig. 593.

supra-patellar pouches and to spare the patella and its ligament. But it was found to have the disadvantage of not thoroughly exposing the posterior angles of the joint, especially that behind the outer condyle. So of late the transverse or semilunar incision has been used. But the indiscriminate removal of the patella is a much more serious matter. It brings about the destruction of the attachments of the quadriceps extensor femoris, and is one of the main causes of the flexion to which I have just referred. As Sir Charles Bell has pointed out, a peculiar harmony pertains to the contraction and relaxation of opposing groups of muscles. When one group is weakened or destroyed the other, being unopposed, distorts the limb. Sometimes the patella may be too diseased to be kept, but even then the aponeurosis over it and at either side of it can be preserved. When the patella is sound it ought to be kept for another reason. In one case I was able to peg its sawn surface to the fronts of the tibia and femur, both of which had been sawn to receive it. The ligaments, too, perform important functions. In extension of the knee, as is well known, they are all on the stretch, and keep the femur and the tibia in the closest contact, and prevent rotation. The crucial ligaments are particularly important. They obviously prevent displacement of the tibia backwards and forwards. Also, in extension, as Bruce Young* has shown, they screw home and lock the tibia and femur. The lateral ligaments assist the crucial ligaments, and combine with them to bring about that rigidity and immobility for which the extended knee is remarkable. Obviously in the ordinary operation all this is quite ignored. The shape of the articular ends of the femur and tibia are accessory to this screwing home and locking. And, in addition, the spine of the tibia, being fitted into the intercondylar notch of the femur, effectually prevents lateral displacement of the tibia when the knee is extended. It is hardly necessary to say that the usual operation of resection of the knee sacrifices all the advantages which may be secured by leaving the patella and its ligament, the lateral ligaments, and the crucial ligaments, or by preserving the interlocking of the articular ends. Moreover, it leaves bony

* R. B. Young on the Grooves Separating the Patella from the Meniscotibial Surfaces of the Femur, and on Locking of the Knee-joint in Full Extension. 'Memoirs and Memoranda in Anatomy,' by Cleland, Mackay, and Young, 1889, p. 147.

surfaces which, besides being unsupported by ligaments, are themselves flat and smooth and easily displaced.

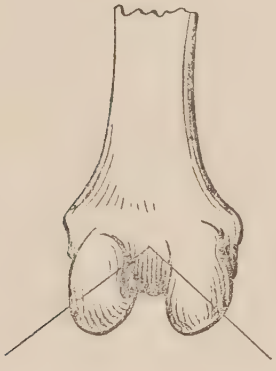
To obviate the disadvantages of the usual operation, and to retain the advantages which the arrangements of the ligaments and articular ends afford, I have, in suitable cases, performed the following operation. First, the knee being bent at half a right angle, a transverse or slightly curved incision is carried across the centre of the ligamentum patellæ, from one tuberosity of the femur to the other. The ligamentum patellæ is divided and the joint opened. As I have already said, opening the joint by the vertical incision at the inner side of the patella was tried, but was given up, because it made the removal of all the synovial membrane difficult or perhaps impossible. This quite outweighs the advantages of the vertical incision. Some surgeons have exposed the interior of the knee by sawing through the patella. But this was not done in any of the cases, because that bone is often tuberculous, and because it does not unite with so much certainty as the ligament. Moreover, the divided patella is not adapted for fastening to the tibia and femur. The knee-joint having been freely opened and bent to a right angle the extent of the disease is ascertained. Then the synovial membrane is removed with knife and scissors as carefully as if it were full of malignant disease. Sometimes to get at the upper part of the synovial membrane the ends of the transverse incision have had to be carried upwards. If any synovial membrane be left behind tubercle is likely to grow in it; also it is apt to inflame and secrete fluid which may accumulate and become septic. In removing the synovial membrane it is convenient to leave the part behind the condyles until the femur has been sawn. As the synovial membrane is taken away the ligaments come into view. Healthy ligaments are to be preserved. Whether it is always right to keep both the crucial ligaments remains to be seen. It is certainly very hard to remove all the synovial membrane without cutting the anterior. Nevertheless, as I have pointed out, the crucial ligaments help very powerfully to hold the tibia and femur together; the posterior one prevents the tibia falling backwards as the leg lies extended on the bed; after the ordinary excision there is a tendency for the tibia to fall backwards. Fortunately the posterior crucial ligament can often be preserved, and is of service in preventing that accident. The anterior crucial ligament

prevents displacement of the tibia forwards, and is therefore less important; it has hardly anything to do with backward displacement. But it would be better to destroy one or both crucial ligaments rather than leave any diseased synovial membrane behind. This was shown by a case in which my anxiety to preserve the crucial ligaments led me to leave behind some synovial membrane, which quite spoilt the operation. The patient was a sailor with tuberculous disease of the knee. The disease in the synovial membrane was extensive, with considerable ulceration of the articular cartilages. The ligaments were kept; the wound healed by first intention, and he went in six weeks to a convalescent home with the limb in plaster. He had, of course, strict injunctions not to walk on the leg. A month or so afterwards he came back and complained that his leg hurt him when he walked about on it. It was clear from the swelling that the tuberculous process was still progressing, although the union was wonderfully firm considering what he had been doing. My colleague, Mr. Peyton Beale, in my absence, kindly removed the tuberculous disease, which he told me was quite at the back of the joint, behind, I believe, the crucial ligament. The ultimate result in this case was highly satisfactory.

The internal and the external lateral ligaments, being outside the joint, are much easier to save. In the next stage of the operation, after the femur and the tibia have been sawn, these ligaments are of the greatest use in keeping the bones firmly together. So far the operation has hardly differed from many others; but in the next step—namely, the treatment of the bones—it is quite different from any I have been able to find described. First, the articular surface of the patella is sawn off, and, if necessary, its cancellous tissue is gouged. Then the trochlear surface of the femur is sawn off, leaving a flat surface upon which the upper part of the patella fits. The femur itself is next raised vertically by the assistant, and the greater part of its articular surfaces taken away by two saw cuts, which begin at the convexity of the condyles at the edge of the articular cartilage. These saw cuts are carried obliquely into the intercondylar notch of the femur until they converge, entering the notch at the edge of the articular cartilages and below the attachments of the crucial ligaments (*vide* Fig. 1). In making these cuts the lower part of the rather extensive attachment of the crucial ligament cannot

always be saved, but as the upper attachments spread out a good deal the greater part can be saved. The antero-posterior plane of these cuts should be at right angles to the axis of the femur. By these saw cuts a deep notch is made in the femur, leaving some articular cartilage in the front and back of the condyles. This cartilage is either torn off or removed with a sharp spoon or gouge. The tibia is treated upon the same principles as the femur. With a narrow saw two oblique cuts are carried upwards from the epiphysial line to converge at the base of the spinous process (Fig. 2). Here, again, the articular cartilages can be removed without destroying the lower attachments of the crucial ligaments. This is quite feasible, because these structures occupy but a small area of the upper service of the tibia in front of and

FIG. 1.



Showing section of femur.

FIG. 2.

Showing section of tibia.

behind the spine; indeed, the posterior is attached to the posterior surface of the tibia in the popliteal notch. This stage of the operation is easily accomplished without destroying the lower attachments of either the external or of the internal lateral ligaments, the latter being attached down the shaft of the tibia quite out of harm's way. The antero-posterior direction of the plane of these saw cuts is at right angles to the axis of the tibia; their obliquity should correspond to that of the sawn surfaces of the femur.

The advantages which may be claimed for this method of sawing the femur and tibia are as follows:—The original fitting of the tibia into the intercondylar notch is preserved, and any lateral displacement of the tibia is still impossible. Further, the same wedging in of the tibia effectually prevents rotation of that

bone upon its long axis, and, therefore, the foot falls neither inwards nor outwards. To these advantages may be added that large areas of sawn bone are brought in apposition, and this with the smallest removal of either epiphysis. The whole thickness of the femoral epiphysis is left at either side, and the whole thickness of the tibial in the middle. If the knee be extended after the bones have been sawn, the benefit of preserving the ligaments becomes apparent. As the leg is extended they become tight, and jam the wedge of the tibia into the notch in the femur. Here it is firmly fixed so long as extension is maintained. As I have pointed out, if the crucial ligaments can be preserved a further advantage is gained, because in extension the posterior prevents the tibia falling backwards and the anterior prevents its displacement forwards. The operation is finished by sewing together the ligamentum patellæ with buried silk sutures, and by subsequently closing the wound. In one case the patella was fastened with ivory pegs to the femur and tibia, but lately this has been omitted. The patella seems to form very strong connections without the pegging. The front of the tibia and the front of the femur were wired together in one case so as to prevent flexion. Afterwards the limb is kept for a month or six weeks on a Gant's splint. But after this operation the immobility which is so essential for success is much easier to preserve. Indeed, as the tibia cannot slide to either side or backwards and cannot rotate, we have only to guard against flexion. That movement is one of the easiest to prevent, and has little tendency to occur if the patella has been preserved and its ligament sutured. When the limb comes off the Gant splint it is put into a leather splint. A patten having been put on the sound foot the patient goes about on crutches, swinging the resected limb. I have hitherto advised that this treatment be continued for a year, but perhaps this time might be shortened.

I have been unable to learn that any surgeon has performed a resection of the knee at all similar to that which has just been described. Mr. Treves * remarks that "Dr. Fenwick, of Montreal, saws both femur and tibia in a curved line, so as to make them fit together more closely and accurately than they would do otherwise." The bones have been sawn in all kinds of ways †

* Treves, 'Operative Surgery,' vol. i, p. 692.

† 'Allgemeines über Resectionen, Handbuch der Chirurgie. Pitha und Billroth,' 1882, p. 193.

—obliquely by Billroth, in a kind of zigzag by Albert, and the exact reverse of that which I have described by Sédillot. However, none of these methods seem to be based upon the principle of attempting to retain the original fitting of the bones and the action of the ligaments.

The operation which has just been described has been done four times since 1889. A youth who was operated on in 1889 was earning his living three years afterwards, and his father wrote:—"He gets about freely, and does not complain of it in any way; it is filling out very nicely and straight." Mr. Mark Taylor, writing about a youth operated upon in April, 1896, says that now "the leg is in very good position; no pain or tenderness anywhere." The photographs which Mr. Taylor sent certainly bear out the statement as to the position of the limb, and also show that it is exceedingly well developed. In a third case, done nearly a year ago, the patient has a good and straight limb, but I doubt whether the union is yet bony.* She had a septic sinus at the time of operation, and the wound suppurated. The fourth case was, as I have already said, a comparative failure, because I did not thoroughly remove all the synovial membrane about the crucial ligaments and behind the condyles. This omission evidently needs to be particularly guarded against.

So far this operation seems to me to have the advantage of treating the bones so as to make it much easier to keep their cut surfaces in contact and at rest; no lateral movement or rotation is possible. Also, under favourable circumstances no falling backwards of the tibia can occur; next, the growth of the epiphyses is less interfered with; and, finally, the ultimate result is a very solid synostosis, with hardly any tendency to flexion. To gain these advantages the patient runs no risks beyond those of the usual operation.

The PRESIDENT observed that this method of locking bones in connection with operations on the knee joint appeared to be novel. The late Mr. Fenwick, of Montreal, had shown him resections done in various ways, no doubt with the same object as the author had in view, but he had not seen, as far as he remembered, anything exactly similar to what Mr. Lockwood had delineated that evening. By the preservation of the crucial ligaments, displacement forwards was prevented; while the lateral displacement which was usually so difficult to avoid, and had called forth so many forms of apparatus and splints, was obviated.

Mr. SHEILD observed that it was often possible when a new operation was brought before the Society to say at a glance whether it was good or

* October, 1897.—Now very straight, strong, and rigid.

bad, and from this point of view the author's operation seemed to be one of value. He pointed out that resection was an operation seldom done in other than hospital patients, because private patients were able to carry out to the full the surgeon's directions for treatment. He suggested that if surgeons could see many of their cases of excision in after years, they would often be disappointed at the ultimate result. He referred to the case of a boy of 10, a very bad case of knee-joint disease, with great pain on movement and with many discharging sinuses. Two years ago this was operated upon and the sinuses scraped, and the limb appeared after recovery to be straight, the result of the operation being apparently quite satisfactory. He had seen this lad a few weeks since, and he saw that the limb had undergone lateral distortion to such a degree that it seemed highly probable that ultimately amputation through the thigh would require to be performed. He believed that the principle of dovetailing the bones was first introduced by Mr. Davy, of Westminster, with the object of preventing lateral displacement. The great principle of resection of the knee, apart from removal of the synovial membrane, was absolute fixation. That fact had been brought home to him by the practice of Sir George Humphry, whom he had seen do this operation in cases in which one would hesitate nowadays, such as chronic osteo-arthritis, and he had seen him do it in a man of 50 for a septic wound with success. What Sir George Humphry used to insist upon was absolute fixation of the limb upon a long back splint, the dressing being applied without the splint being removed. Sir George had obtained excellent results. The only splint he himself had used for years was that devised by Howse, of Guy's, which had the advantage of absolutely fixing the thigh and the leg, and the dressings could be applied to the limb on the splint. He thought that this splint used after the operation suggested by the author brought them to the end of operations for the excision of the knee. Pegging and wiring had been used—the first to use the peg being Mr. Morrant Baker; these also aiming at fixation of the parts. He pointed out that the ordinary excision with the splint would not accomplish what the author's operation did, viz., to fortify the limb against subsequent displacements. He proposed to give this operation a trial at the first opportunity. He added that bone disease would have to be carefully guarded against, for it would be easy to leave foci of disease behind. He himself was always afraid of leaving the patella in these cases, and he had placed in the St. George's Museum a specimen in which a distinct focus of disease in the patella had spread to the joint, and had led to its destruction. He thought the operation would be applicable to other conditions than tuberculosis, and he felt sure it constituted an improvement upon the ordinary methods.

Mr. Stanley Boyd, in respect of tuberculous disease of the knee in young subjects, pointed out that the choice lay between excision and arthrectomy. He himself, whenever possible, had always done the latter operation, in order to preserve the epiphyses. The author, he remarked, claimed that his operation did this to some extent. In these young people in whom arthrectomy was possible, they had to contend with the tendency to flexion. He concurred in what Mr. Sheild had said as to bending taking place long after the original operation. Personally he had had much more trouble with flexion than with lateral displacement after arthrectomy. The question that suggested itself to him was whether the addition to arthrectomy would prevent that. First

as to leaving the ligaments intact. He pointed out that as the bones were shortened by the section, the ligaments could not very well exercise any effect in keeping the bones in contact. Next, as to section of the ligament rather than of the patella, in order to preserve the continuity of the extensor apparatus in front of the joint; he had tried this but had always been disappointed, no matter in what way he had dealt with the extensor apparatus. The best result in his hands had followed upon sawing through the patella longitudinally, turning the halves outwards on either side. That operation he had done in a man of 50, and he got a movable joint which could be used for pushing the spade in digging. That was an arthrectomy. If by means of this operation they could get preservation of the epiphyses with *bony* ankylosis, there would result a distinct advantage. He thought the operation might have a future before it as an addition to arthrectomy. With regard to fixation of the limb he had not had any difficulty. He always made use of Thomas's knee splint, which fulfilled every requirement. With this splint he had had no difficulty in respect of immediate displacement of the bones. For that reason he did not require any special mode of cutting the bones, and he always attached the bones together in the same way—recently, by simple carpenter's $2\frac{1}{2}$-inch screws.

Mr. G. R. Turner said he had never seen anything exactly like this operation before, as far as the knee joint was concerned, but it was in its main features very much like the operation practised by Senn for ununited fractures of bone, though Senn, he believed, surrounded the dovetailed ends with a ring of decalcified bone. The principle in both was the same.

Mr. Stanley Boyd asked the author whether he could afford any explanation of the difficulty they experienced in obtaining union between these particular bony surfaces. He suggested that possibly it was because they interfered so little with the periosteum, mere bone possessing very little power of repair.

Mr. Lockwood, in reply, said that in writing his paper he had not been under any delusions. Although he had been thinking over it ever since 1887, he had only had four cases in which he felt justified in trying what was of course an unusual procedure. Still he thought he might try to show on rational grounds why it should be given a trial. What he wished to lay stress upon was the principle that in resection of the knee the shape of the bones, and, as far as possible, the functions of the ligaments, should be preserved. He ought, perhaps, to have laid more stress upon the contraction of the muscles, but even without them, when one extended the tibia, it came up itself into the notch. The bones were so sawn as not to destroy their capacity for inter-locking. He had seen lateral displacement pretty often, just as the President and Mr. Sheild seemed to have done. One of the great blots in his paper was the small number of results. He would have liked to have brought the patients to the Society, but that was not possible. As regarded flexion he had watched for it a long time. He had three times had to resect knees which had become flexed, but he could not help thinking that this was entirely due to the way in which surgeons destroyed the quadriceps extensor. When the patella was retained he did not believe it would occur. He had seen a good deal of wiring and pegging and scraping, and had come to the conclusion that the pegs did not do what they were supposed to do. They acted at such a great mechanical disadvantage. He had never tried screws, but wiring seemed to do

something towards preventing flexion. He had laid very little stress on the after use of splints. At Bartholomew's they used Gant's splint, which was also a very good one. He regarded it as a defect in many kinds of apparatus that there was no outside splint going up into the axilla. Without this patients were apt to sit up in bed, and then of course they ground the ends of the bones on each other. He thought the bones often did not unite simply because they could not be kept quiet. Many of the splints used did not prevent movement.

## SOME CASES OF INTESTINAL NEUROSIS.

By Clinton T. Dent, F.R.C.S.

The following cases, which I have ventured to describe under the somewhat vague, and I hope only provisional, title of Intestinal Neurosis, do not perhaps present any very special feature, and I should not have ventured to bring them before the Society save that, as far as I know, the subject has not been discussed here; and indeed has not hitherto been treated of at all frequently in English medical literature. I do not pretend to be able to throw any new light on the causation of these curious disorders, for the term Intestinal Neurosis clearly includes various complaints. My aim is rather to discuss the value of the surgical treatment that has been advocated and practised for the relief of the condition. Whether operative interference, that is to say, abdominal section, is really justified in these cases seems to me still an open question. That some benefit, in certain instances, has resulted from laparotomy may be admitted, even where the operation has revealed practically nothing that could be surgically dealt with. There are cases in which the condition is more or less recognised as one of intestinal neurosis, and in which there is reasonable expectation of finding a definite cause. In such, if the operation is deliberately undertaken with the hope of securing relief from a very distressing condition, it may be justifiable enough; but there are others—and many—in which the probability of finding any mechanical disorder is almost *nil*. To open the abdomen in such instances, that is, in diseases of a purely functional nature, is, it appears to me, to carry the practice of exploratory operation perhaps to as great limits as even in these days are warranted. Glénard's monographs really call attention to a large class of abdominal disorders which have a singular capacity for mimicking previously recognised

affections. As my own cases show, they can imitate very closely familiar disorders, such as renal calculus, appendicitis, intestinal stenosis, disease of pylorus, and the list might be very largely extended.

The first case I can only describe from memory, and it occurred some years ago. It was an instance which may seem to negative some of the conclusions drawn, but on that very account it seems proper to cite it. It was that of a man, some 35 years of age, who had for a long time suffered from symptoms that had led to the diagnosis of probable intestinal stenosis. He had wasted and lost strength to such an extent that he was unable to follow his profession, and pain, referred to the epigastric region, came on at a more or less definite time after taking food, generally, I think, about two hours. The belly was retracted, and the patient so extremely emaciated that examination of the abdomen seemed easy enough; but, as far as my experience goes, these thin patients are really more difficult to examine, and the touch is more apt to be deceived than in those whose abdominal walls, though thicker are more flaccid. In this case, under an anæsthetic, a horizontal swelling, somewhere about the shape and size of a sausage, apparently situated within the abdominal cavity, could be definitely felt just above the umbilicus. Abdominal section was performed, but no tumour could be discovered. It was thought that the lumbar lymphatic glands were larger than natural, and that they were very probably tubercular, but there was no evidence of suppuration in them. The patient made a perfectly good recovery; the symptoms improved, and he gradually regained health and strength. In this instance, if there was any neurosis, it was purely local and, so to speak, abdominal. There was no ptosis of the viscera to be noticed or unnatural mobility of the kidney. Yet I found it hard, on thinking over this case and comparing it with many others that I have seen since, to believe that there was anything more than a functional disorder. And it is highly probable that the tumour, which was apparently felt through the abdominal wall, was merely a portion of the small intestine in a condition of spasm or cramp.

Somewhat similar, but more misleading and less satisfactory, was the case of a patient who was under my care at St. George's Hospital a year or two ago. It occurred in a man 27 years of age. His occupation was that of a fisherman, and he led what

most of us would consider an extremely healthy, active, outdoor life. Without detailing too minutely his symptoms, I may say that they pointed generally to those of renal calculus. He had severe and repeated attacks of pain commencing in the right loin, extending down the course of the ureter and into the thigh and associated with vomiting. There was no doubt at all of the severity of the pain, which came at tolerably regular intervals, and seemed to be increased by manipulation. No great experience, however, is needed to make the surgeon somewhat cautious in giving a positive diagnosis in a great number of instances presenting symptoms of renal calculus. Still, as it was felt that there was a fair chance of discovering some condition of the kidney, which might be relieved by operation, I cut down on the organ through the loin. It was sufficiently movable in the perinephric fat to enable me to examine it very completely. I incised the kidney and explored the pelvis, but the organ appeared to me to be perfectly natural, and in my judgment the kidney was not sufficiently movable to justify the operation of nephrorrhaphy. The wound healed at once, and the symptoms disappeared. While at the Convalescent Hospital a few weeks after operation he had a severe attack similar to those he had previously experienced. The attack began with headache and pain in the inner side of the thighs —chiefly the right—and temperature rose to 103°. He had severe rigors followed by profuse sweating and vomited a quantity of bilious matter. The pain continued more or less for five days, and then ceased suddenly. He now complained of tenderness on the right side of the abdomen, on a level with the umbilicus, and in the right iliac fossa. In this region could be felt a swelling like a thick cord, some inches in length, tolerably well defined and tender, but it was not in the situation and seemed too superficial to be the ureter. This negatived the supposition that the symptoms were due to blood clot or calculus passing down the ureter or dilating that tube. Opinions were divided as to the nature of the swelling, and he was watched for a time and kept quiet. For the next eight days he only complained of feeling of sickness and of the consciousness of a swelling in the right iliac region. No positive tumour could, however, be made out. Then, shortly after a meal, he was seized with a sudden pain in the right side of the abdomen and a severe attack of vomiting which continued all day. The temperature was normal. For the next

two days he had occasional attacks of pain and sickness; and again three days later a further severe attack of pain and vomiting, the pain now being chiefly referred to the bladder. But during the whole of this time the localisation of the pain was extremely constant. A hard mass could now again be definitely felt in the right iliac region, and the man declared his condition to be so intolerable that he earnestly desired some operation to be undertaken for his relief. The description may suggest appendicitis, but the actual condition did not seem to indicate that trouble. The swelling was not constantly present, was not bound down, and there was no indication whatever of localised peritonitis. The mass when perceptible felt more like a growth in the walls of the large intestine. Still, as it was at least possible that the condition was really one of appendicitis, I opened the abdomen in the right semi-lunar line, though without any very great hope of finding any condition relievable by operation. An adhesion formed by a tag of omentum lightly glued to the front of the cæcum was all I could discover wrong. There was no other evidence of peritonitis whatever, past or present, and it was hard to believe that his symptoms were due to this adhesion. There was nothing amiss with the appendix. The condition of the cæcum and first portion of the ascending colon was remarkable. Perhaps from the manipulation or from the exposure, the first few inches of the colon contracted into a cord-like mass, though with scarcely any diminution of the calibre of the gut. The condition was, rather, a mild form of what has been described as ballooning, though this does not imply distension. So firmly did the muscular coat contract that the portion of large intestine which lay exposed in the wound gave exactly the sensation of a tumour, and no doubt a similar contraction of the colon had given rise to the impression before operation that there was actually some such morbid condition present. The rigid condition of the colon did not pass off, but seemed to be still present when the sutures in the abdominal wound were drawn together. As far as could be ascertained by examination through the abdominal wound, which, as I have mentioned, was in the semi-lunar line, there was nothing wrong in any part of the abdominal cavity. The symptoms were again relieved, but after two or three weeks the vomiting again returned and also the pain, though the latter was much less severe. After a while—some five weeks after operation

—the attacks of vomiting became more regular, coming on every other day. The man seemed in other respects well. Although I had not been able to ascertain that there was any marked dilatation of the stomach at the time of operation, it struck me that the man, though he had not a very dilated stomach, might have a stomach which was capable of undue dilatation. Inflation of the stomach with air seemed to justify this view, and accordingly the stomach was regularly washed out. The man got so much relief from this treatment that he speedily learnt to practise it on himself. After a short time, however, the attacks of vomiting diminished so that the washing out seemed unnecessary. From time to time, however, the patient used to pass the tube for himself and wash out the organ, more apparently from a desire to keep his hand in, in case the treatment subsequently became necessary again, than from any other reason.

For some months all went well. He was able to follow his avocation without any treatment; but a few weeks ago—nearly two years after his first operation—I learnt that he was in a provincial hospital again with symptoms which were now thought to be due to gall-stones. Some further operation was proposed, but I have been unable to ascertain whether it was actually performed, or, if performed, what the result was. It seems highly probable that, as in the previous instances, nothing abnormal that could be dealt with would be discovered, though very probably the symptoms might again have been relieved for a time. The patient was no malingerer, and had nothing to gain by residence in hospital. No doubt the discomfort complained of was perfectly genuine, and the desire for relief by operation, which in such cases sometimes amounts almost to a craze, was not unnatural. For my own part, I should hesitate to accede to any request for further operation in his case so long as the symptoms appeared but variations of the neurosis. The case to me appears to be a fairly typical one of a rather exaggerated type of intestinal neurosis—a condition of affairs, like other nervous mimicries, none the less serious because the simulated disorders did not really exist. In this case the usual sequence of symptoms noted by Glénard was observed: first in the kidney, with pain referred to some remote region, most commonly, as in this man's instance, in some part of the leg. Mr. Treves narrated recently a case in which after the operation of nephrorrhaphy pain persisted in the heel for some months. Next in order came the gastric symptoms, possibly from the dragging down of the

stomach by the transverse colon—a condition which, as Glénard points out, is an early manifestation of ptosis of the viscera. Then the singular condition of the large intestine that I have described. Following this the trouble was referred to the liver, though it must be noted as I have mentioned that I have no information as to actual disease having been discovered in or about that viscus.

It is possible that the operations actually performed were beneficial, and, considering them impartially, they may have been justifiable, according to the standard of the day. Yet I must confess to feeling but little inclined, judging by the cases I have seen and others that I have come across in medical literature, to perform experimentary explorations in patients in whom the diagnosis of pure intestinal neurosis is made; for I am more than inclined to question the likelihood of the improvement being at all permanent. The long duration of the symptoms, the manner in which they vary, though seemingly localised to one part for awhile, the general improvement when the attacks cease, and frequently the diffuseness of the symptoms, point to such neurosis. To put the matter in the plainest way, if the surgeon is led in these cases to open the abdomen by what is no doubt a venial but still a considerable error in diagnosis, he is a little more than lucky if his patient derives any benefit. The almost absolute certainty of recovery in such a case from the immediate operation is, of course, no argument in favour of the operation. In the great majority, I believe, of intestinal neuroses no condition relievable by operation will be found. If the case is really one of visceral ptosis, which appears to be a very progressive condition, there is no real prospect of benefit. I need not mention the cases in which slight disorders of menstruation give rise in neurotic women—and often in those not apparently at all neurotic—to symptoms mimicking intestinal obstruction. Such cases are fairly common, and the grave mistake of opening the abdomen is not likely to be made by any one with experience.

The following case, which I may give in a few words, seemed to me one of pure neurosis. It occurred in a man nearly 50 years of age, who had lived much abroad, but had never suffered, save from very slight touches of intermittent fever, from any disorder endemic in the tropics. He had lived a vigorous, healthy, athletic life, and had been troubled only by chronic constipation, for which

he was in the habit of dosing himself pretty freely, as is usually the habit of persons resident in hot climates. Some four years previously he was seized at night with a sudden pain, first felt over the right ischium, which then spread rapidly over the abdomen, and was likened to a cramp which lasted for some hours, and which may possibly have been due to a condition of the intestine similar to that mentioned in my last case. The cramp, which did not seem to be in the abdominal wall at all, ended tolerably suddenly, and was followed by a period of exhaustion. During the attack violent eructations occurred, on a very few occasions vomiting also, and on one occasion the vomiting contained a little blood. The attacks always occurred about the same hour and at night. The description of the symptoms was very suggestive of the condition of hysterical flatulence occasionally seen. He had been treated on a variety of assumptions, most of which assigned a malarial cause to the disorder, but without any benefit. Examination of the abdomen seemed to show that the cæcum was somewhat dilated and also the colon. The liver was rather lower than natural, and its lower margin was perceptible. Operation had been suggested but declined. Considerable benefit was obtained by abdominal massage; and some months later I heard that the attacks, though less severe, still continued. My business with the case was to give an opinion on the question of operation, and this I did in the negative. In such a case I do not believe that any operation would have been justifiable, even though it might have resulted in temporary benefit. It is very probable that in such cases the abnormal contraction or cramp of the intestine tends to produce some lengthening of the mesentery and of suspensory ligaments; and once the stretching has commenced it is likely to persist, as is evidenced by so many cases of hernia. No mechanical shortening appears to me to be possible, and the mere fixation of one or other abdominal viscus (I am not dealing with the uterine organs) is but of partial benefit and likely to be of a very temporary character. The progress of cases of marked enteroptosis is fairly well known when they occur in women. The abdominal walls become flaccid and pendulous, and marked changes occur in the subperitoneal sheath, but in such cases of intestinal neuroses as I have described occurring in thin, muscular men no such obvious anatomical changes seem to take place. Yet these cases, I think, are by no means rare.

The condition in which the neurosis is, so to speak, secondary to definite lesion, are often even less hopeful. I may give one instance. The patient was under my care in St. George's Hospital. He was admitted suffering from a cerebral gumma. He had double diplopia and ataxic gait. There was ulceration of the tongue and a node on the sternum. Under antisyphilitic treatment these symptoms passed off, but after a time a variety of abdominal symptoms developed, the chief of which was persistent vomiting. Finally, to relieve this, the abdomen was opened. The pyloric end of the stomach was tied down by numerous adhesions which were separated, as it seemed probable that they gave rise to the symptoms by interfering with the gastric movements. There was no dilatation of the stomach at all; indeed, the viscus was much smaller than natural. For some months the vomiting ceased, the man's strength improved, and he gained weight. Then, as the symptoms returned again, the abdomen was again opened and pyloroplasty performed, with the object, as there was no dilatation of the stomach, and it was evident that there was little, if any, gastric digestion, of passing the food on into the intestine as quickly as possible. Again, for some time the symptoms were completely relieved, but after a while, notwithstanding the most careful attention to diet, the vomiting gradually recommenced, and has now for the last year or two been so persistent that it is difficult to understand how general nutrition is maintained at all. Yet the patient is fairly strong and active, and able to pursue his occupation. There is, however, now evidence of dilatation of the stomach, notwithstanding that there is in all probability still a free opening through the pylorus. At no time did the vomiting ever seem to come from any part of the intestinal tract below the stomach. Here, again, one definite outcome of the rather vague class of symptoms grouped together under the heading of intestinal neuroses seems to be dilatation of the stomach—a condition which so far has not been very successfully dealt with by operative measures.

I have brought before the Society but a very fragmentary and discursive paper on a subject that is probably scarcely fitted for a partial treatment at all. As points for discussion I would venture to submit that in cases of pure intestinal neuroses, that is to say, in those cases where the real disorder is of too functional or subtle

a nature to be recognised by touch or eye, operative interference is rarely justifiable ; in cases of progressive visceral ptosis, mechanical interference is likely to be fraught with little benefit. Where, on the other hand, the symptoms are referable to a movable kidney, much, if not permanent, benefit may often be gained by nephrorrhaphy. Not a few of the cases of so-called intestinal neuroses are often merely due to premonitory indications of a condition leading to dilatation of the stomach ; in such operative interference is unlikely to do good. As tending to limit the field of abdominal surgery, these propositions may seem antiquated or almost reactionary ; but I believe they are true.

Mr. Sheild observed that these cases were so important to surgeons that they could not listen to too many of them. He himself had had an opportunity of studying the case of the man with symptoms of renal calculus. He had watched him for nearly five weeks and he had never been able to make out what the symptoms were due to, in fact he was quite puzzled. He had made up his mind to open the abdomen in the middle line, but Mr. Dent's return had saved the patient from this operation. With regard to the curious cases where the kidney was manipulated and no stone found yet the patient got well, he said he had seen several such cases. In one, a man complained of distinct signs of right renal calculus ; the signs were the classical indications, even to the changes in the urine. He operated but could find no stone, but from that day the man lost all his symptoms and had remained well ever since. What happened in these cases he surmised was that the squeezing dislodged some gravel or other concretions out of the kidney or pelves and so relieved the symptoms. Many of these so-called cases of visceral neurosis which derived benefit from operation might be due to rupture of a band without the cognisance of the surgeon. He mentioned the case of a young single woman in St. George's Hospital who suffered from persistent vomiting. She vomited constantly for several weeks without any appreciable cause and all the remedies falled to afford relief. She was consequently emaciated to the last degree. He examined her very carefully and expressed the opinion that it was neurotic, her menstruation having been scanty and painful, and there being other signs of a neurotic temperament. Her vomiting continued, and at Dr. Owen's request he performed an exploratory operation though fully convinced in his own mind that nothing would be found. He opened the abdomen and found tuberculous peritonitis with a band pressing on the jejunum. This he divided with scissors and the patient made an immediate recovery without any return of her symptoms. That showed the difficulty of these cases, viz., the difficulty of diagnosing between neurosis and real disease. For this reason in certain cases an exploratory laparotomy might be perfectly justifiable, and it was his belief that the presence of slight bands or adhesions between the viscera would prove the true explanation of many cases thought to be neurotic.

Mr. Lockwood, referring to the question asked as to whether they would ever get to the bottom of these cases, observed that he did not think they would because few surgeons had the courage to say they had

opened the abdomen without finding anything. Until surgeons did so he did not think they would find out what these so-called intestinal neuroses really were. He himself had had a case which he thought might almost be placed in this category. A woman came to him with all the signs of gall-stones in the bladder, and she was seen by a number of surgeons. Some thought they felt the distended gall-bladder, and on the table with the patient under an anæsthetic one surgeon even thought he felt the stones crunching together. He himself remained rather sceptical but he opened the abdomen and nothing whatever was found. He thought that offhand this might be a case of intestinal neurosis. He had, however, a lingering doubt whether this patient had not had some ulceration of the duodenum or something of the kind. In fact, the term neurosis meant that the something which might have produced the symptoms had not left behind it any definite physical signs of disease. He had been struck by the fact that in several of the author's cases there had been adhesions, and he asked the author how he accounted for them. As Mr. Sheild's patient had blood and pus in the urine it could not possibly be put down to neurosis. In similar cases of his own he had come to the conclusion that there was actually some disease which in some unaccountable way was cured by the operation.

The PRESIDENT questioned whether it would be possible to arrive at a means of ascertaining if these cases were due to what was called a neurosis and not to some physical condition. He referred to the common experience of patients with varicocele, where both before and after operation they came complaining of painful sensations in connection with what was after all a comparatively trivial physical affection. In many of these cases relief followed operation, but they often returned complaining that the symptoms were present in an aggravated form. He found it impossible to reconcile such a complicated condition of disordered sensations with the usual physical appearances presented by these patients. Mr. Sheild's remarks indicated the difficulty that was experienced in arriving at an explanation of the symptoms in many of these neurotic cases.

Mr. DENT, in reply, observed that cases must arise in which the symptoms were so misleading that the surgeon was induced to open the abdomen without finding any condition that could be relieved. The more such cases were published the better chance would there be of their arriving at more precise knowledge about visceral neuroses. Especially ought cases to be published in which the symptoms returned after operation. Where the case was pretty clearly one of neurosis, and had gone on perhaps for years, he did not think that such an operation as opening the abdomen, merely because opening the abdomen without finding anything might possibly relieve the patient, was justifiable. When there were definite signs to go upon it was another matter. Renal symptoms were commonly early manifestations of these visceral neuroses. With regard to adhesions he said that in one case he had deliberately opened the abdomen with the idea that the mischief was in or near the pylorus. Several adhesions were found which he thought were sufficient to account for the symptoms. In the other case he could not say how the adhesions had occurred. He had, however, met with adhesions of the omentum like those referred to in extremely young children who were apparently born with them. In one case operated on a piece of omentum was found lightly adherent in a hernial sac in a quite young child.

*March 22nd*, 1897.

## THREE CASES OF INTESTINAL ANASTOMOSIS.

By Harrison Cripps, F.R.C.S.

Case 1. *End-to-End Anastomosis of Ileum to Ileum.*—The patient, a young woman, was under my care at St. Bartholomew's Hospital. Obstruction followed after an abdominal section for hysterectomy. A temporary enterotomy was performed by my colleague, Mr. Bruce Clarke. She recovered from this, but rapidly commenced to run downhill from malnutrition, for the obstruction was high up in the ileum, and all food only partly digested escaped from the enterotomy opening. All attempts to close this failed, on account of the obstruction below. Ten weeks later I performed abdominal section. The strictured portion was found 7 inches below the enterotomy opening. The bowel was divided just below the obstructed portion, and again just above the site of the enterotomy opening, the intervening portion, about a foot in length, being removed, and the ends united. I will not go further in the details of this case, for I mentioned them at the time in this Society. The patient recovered, and it may be of interest to know that from that time to this—nearly three years—she has been and remains in perfect health, without ache or discomfort, is thoroughly well nourished, and able to earn her own living.

Case 2. *Double Anastomosis of Large and Small Intestine.* — Mr. Y., aged 55, brought to me by Dr. Webber, had passed many years in India. He considered himself a healthy man up to eight months ago, when he commenced to suffer pain from time to time in the abdomen. The pain was of a paroxysmal character, and was referred to the pit of the stomach. It generally came on soon after taking food, but occasionally at other times. He has had two or three attacks of diarrhœa, but is more often constipated, and has never passed blood-stained mucus. He has not lost flesh, and has had no vomiting.

*Examination.* — Has a large, fat abdomen. On a line with the left nipple, about 4 inches below the ribs, a tumour can be felt, the size of a large fist. It descends on inspiration, and admits of some mobility both from side to side and from above downwards. It is possible to get the hand between the tumour and what should be the position of the lower part of the stomach. The disease had been diagnosed as cancer of the stomach. Dr. Webber and I did not agree with this, and believed it to be the colon. The patient was extremely anxious that an operation should be done if there was the remotest possibility of giving him relief.

*Operation.* — In the presence of Dr. Webber, and assisted by my colleague, Mr. Bruce Clarke, the abdomen was opened by an incision commencing 1 inch below the ensiform cartilage and extending to the umbilicus. On introducing the hand, and raising the omentum, the tumour was seen to be a mass of malignant disease in the transverse colon near the splenic flexure. Adherent to, and incorporated into it from an extension of the growth, was a coil of the ileum about 6 inches

in length. The whole, together with adherent omentum, formed one mass the size of a cocoanut. It was fairly movable, and could be drawn well up into the wound; the stomach was not implicated. The operation was continued by passing and clamping a piece of thin india-rubber tubing round the ileum on each side of the implicated loop, and about 3 inches free of it. The coil was then clamped on either side an inch and a half nearer the portion incorporated with the tumour. After protecting surrounding parts, the bowel was cut across just beyond the pressure forceps on either side, a V-shaped piece of the mesentery being included. The cut ends were then accurately joined by Lembert sutures, about ten to the inch. The transverse colon, after being clamped in a similar manner, was cut across, its mesenteric attachment, which was very thick, being clamped and tied in portions. Incorporated with the tumour was about a pound and a half of thickened omentum. This, after being tied off in portions, was removed with the tumour. The length of the transverse colon removed was 7 inches. The cut ends of the transverse colon were united to each other in a similar manner to that in which the ileum was joined. A small quantity of fæcal matter, on making a section of the colon, escaped on to the sponges, but was at once washed up. The amount of blood lost in the operation was small. The intestines and viscera showing at the bottom of the wound were well swilled over, but the remainder of the abdominal cavity was not flushed; the wound was closed with silk-gut sutures The patient passed a fair night, but there was some abdominal distension and vomiting. Vomiting continued, and the abdomen became distended and tympanitic. The patient gradually sank without further symptoms, and died on the fifth day.

Case 3. *Intussusception and Lateral Anastomosis of Ileum to Colon.*—A lady, aged 23, had had the operation of ovariotomy performed nine months previously. She remained in good health till three weeks ago, when after a monthly period she had considerable pain about the abdomen. She did not remain in bed. Eight days ago she had severe colicky pains referred to the umbilicus and pelvis. Since that time the pains continued, being very severe at times. She has passed no motion for eight days. Four days ago she began to vomit, the vomit increasing in severity, and for the last twenty-four hours being of a distinctly fæcal nature. The patient looked pinched and ill, and the pulse was quick and feeble, the temperature normal. On examination the abdomen was found moderately distended, with a good deal of gurgling. The distension was obviously more marked on the right than on the left side. *Per vaginam* an obscure swelling could be felt high up in the neighbourhood of the broad ligament. Nothing further could be made out by the rectum. A gravitation enema having failed to give relief, an operation was decided upon after consultation with Dr. Champneys and Mr. Meredith. The patient's condition was such as to forbid anything like a severe operation, especially as the cause and site of obstruction were quite unknown. It was therefore decided at once to give relief by performing a temporary typhlotomy, or by opening the ileum as low down as possible.

Assisted by Mr. Meredith I made an inch and a half incision over the neighbourhood of the cæcum. The cæcum appeared to be blocked, but not distended. A greatly distended coil of small intestine protruded into the wound, and with the finger I made out that this was the ileum close to the cæcal valve. The distended part of the bowel was then fixed to

the parietal peritoneum and skin, so that a portion of it—the size of a threepenny piece—was exposed, the rest of the wound was closed with silk-gut sutures, everything being accurately shut off, the exposed bowel was opened with a tenotomy knife, and exit given to several pints of fluid fæces. The symptoms were almost immediately relieved, vomiting ceased, and the distension disappeared. On the eighth day the little opening was blocked up by some foreign body. On seizing this with a pair of forceps it proved to be a sloughed portion of small intestine 9 inches long, including the whole thickness of the bowel, together with a considerable piece of mesenteric attachment. The piece of bowel was obviously an intussusception that had sloughed off. Up to this time since the date of operation no fæcal matter had been passed by the rectum, but from this date small quantities were passed from time to time. The great bulk of motions, however, came through the artificial opening, the material was fluid and ill-digested, the wound around was excoriated and very tender, and the patient commenced to emaciate rapidly, so that two months after the original operation she only weighed 4 st. 4 lbs. On two occasions the opening was closed by a specially devised plug. On each occasion, after about twelve hours, the abdomen became distended, and the patient commenced to vomit, manifesting all the symptoms of acute intestinal obstruction, and the plug had to be removed. It was now becoming very obvious that the patient would quickly die of malnutrition unless the passage into the large intestine could be restored. With this view, after consultation with Dr. Champneys and Mr. Meredith, the following plan of operation was decided on :—To firmly plug the existing opening temporarily to enable the skin to be thoroughly cleaned, then to open the abdomen altogether free of the old scar, making the cut higher up and nearer the middle line, and then, without in any way disturbing the adhesions of the existing opening, to make a lateral anastomosis between the commencement of the ascending colon and the ileum, as near its termination as possible. It was considered undesirable to meddle with the old opening on the following grounds :—First, the unsound and septic condition of the skin immediately round it ; secondly, the extremely feeble condition of the patient made it undesirable to prolong the operation a moment longer than necessary ; thirdly, the opening would act as a safety valve against distension and pressure whilst the lateral anastomosis union was becoming firm.

Assisted by Mr. Bruce Clarke I performed the operation, by uniting the ileum to the ascending colon for 3 inches opposite their mesenteric attachments, and making an opening a little over 2 inches long between them. The operation took a little over thirty minutes, and the abdominal opening was closed with silk-gut sutures. The patient was extremely ill for two or three days, with a very feeble pulse of 150 to 160. She then rapidly recovered. After the fifth day copious actions began to be passed by the rectum, a very small quantity only coming through the old entero-otomy wound. On the eighth day a little plug of special construction—an account of which I have already published in the 'British Medical Journal,' vol. i, 1896, p. 1383—was introduced. By its means the escape of any fluid was completely prevented ; the skin around rapidly became perfectly dry and sound. All the motions passed the right way ; the patient gained strength and weight. The edges of the fistulous opening were on two occasions pared and united. The effect of this was to diminish the opening to a little more than a pinhole size, but neither time was it completely closed. As the patient suffered comparatively

little inconvenience she preferred to wait awhile before any further measures were adopted to bring about its complete closure. The patient is now in good health.

The first case recorded is of interest, from the lapse of time (three years) since the operation was performed, and from the knowledge that the patient is now in perfect health, suffers no sort of inconvenience, is thoroughly well nourished, and able with ease to earn her living in domestic service. After so long a period it is impossible to think that stenosis is the least likely to occur at the point of junction, so that the case may be fairly claimed as one of complete and permanent cure.

Case 2 is of interest from the nature of the operation performed, being one of double anastomosis, a portion of both the large and small intestine being excised. I have not been able to follow or look up the most recent literature on this subject, but I should be interested to know whether any of the members present have had a case of double anastomosis, or whether they can refer me to any such record. The particular point of interest would be not so much the surgical detail of the operation, which is quite practical, but whether a patient can survive such an operation. In my case I practically had no alternative to the method I adopted. The patient himself, who thoroughly realised his condition, begged that, if possible, whatever the state of affairs was that I found inside, I would not abandon the operation, and that he would run any hazard if the operation would afford him the least prospect of relief. On opening the abdomen it was obvious that I must either undertake the hazardous operation described, or close the abdomen and leave the patient to his fate unrelieved. I decided to give him the chance.

The third case is one of considerable interest as illustrating what I have long held to be the right method of treating acute intestinal obstruction in cases where the nature of the obstruction is doubtful, and the patient's general condition too grave to admit of an extensive and prolonged operation. The patient when I saw her was rapidly becoming exhausted from the shock and almost constant vomiting produced by complete obstruction. I hold that in such a case what is required is to give immediate relief to the distended bowel with the least possible disturbance to the abdomen. In these circumstances, if relief be given, the vomiting quickly ceases, and if the patient is not already too far gone she

will get over the shock, and temporarily recover. Time is thus gained further to consider what may have been the cause of obstruction, and the best plan of dealing with it. To open an abdomen in a patient already suffering severely from shock, with an abdomen blown up and distended from delay in treatment, to search for the cause of obstruction, and at once to perform an anastomosis, is to my mind almost certain death.

On the other hand, a few weeks after temporary enterotomy, the surgeon can operate with far more hopeful prospects. There has been an opportunity for thoroughly preparing the patient for an aseptic operation. The intestines not distended no longer offer a formidable mechanical impediment to operative manipulation as they do when tightly distended, by crowding over everything; and, above all, the patient having rallied from the shock of prolonged obstruction, is in a far more favourable condition to withstand what may be a long and formidable operation. The surgeon, too, is no longer hurried, and he is able to attend to minute points of detail in the stitching—so important to success—in a manner which he could not do when every minute is of precious importance.

Lastly, the enterotomy opening, as in my case, will serve as a temporary safety valve after performing an anastomosis. The opening, of course, from the very fact that it was made in the distended intestine, means that it was above the point of obstruction, and will consequently, if an operation is subsequently performed, be above the new junction. Thus there will be no fear of undue distension at the line of junction by wind or fæces. The enterotomy opening being small, it may gradually close of itself after the obstruction beyond has been relieved. If it does not do so, it can be subsequently closed by operation. I do not in this short paper mention bobbins and buttons, for I have on several occasions stated my views on this matter, and with further experience I am more than ever inclined to regard them as incomparably inferior to accurate hand-stitching, and further I regard them as the direct cause of deaths otherwise avoidable.

Mr. Lockwood said that the case of double enterorrhaphy brought to his mind one which was under his care last year in which he had not attempted to perform the double operation, because he thought at the time it would be certain to terminate fatally. He had been strengthened in this impression by a case he had recently seen of double enterorrhaphy, in which a carcinomatous growth was removed from the sigmoid flexure,

and, at the same time, a piece of sigmoid flexure was taken away for the purpose of remedying a fæcal fistula. He remarked that the shock of removing the two pieces of intestine did not appear to be much greater than that following the removal of one piece. One of the junctions was end to end, and the other was by Murphy's button, but both leaked—a circumstance which was peculiarly apt to occur in the large intestine. He observed that the most favourable site for anastomosis was undoubtedly the small intestine, because the contents were fluid and passed easily, without bursting through the sutures. Obviously in the large intestine that complication was more likely to supervene. He asked the author whether he believed that he really gained any advantage by the removal, as in one of his cases, of a wedge-shaped piece of mesentery. In a case of enterectomy, which he had recorded elsewhere, that procedure was attended by so much hæmorrhage and trouble that it materially prolonged the operation, and he determined never again to do it. He mentioned that he had assisted the author in one of the operations in which he had employed Maunsell's method of suture, but, in the comparatively few cases in which he himself had performed enterectomy, he had made up his mind that it was really easier to perform an end-to-end suture. It was not only easier but it was also quicker, and it left a much shorter sutured surface to get into trouble. He remarked further that having gone somewhat fully into the matter on various occasions, he was very glad to hear the author lay stress upon the extreme importance of endeavouring to choose an occasion for the operation when the intestines were empty, as was the case in the successful case related that evening. That was doubtless an important point, but he would not go so far as Mr. Cripps in saying that distension was such a hopelessly unfavourable condition. Enterectomy had often to be performed in cases of hernia in which the gut was ulcerated or gangrenous. He himself had recorded a successful case of this kind in the 'Transactions of the Royal Medical and Chirurgical Society.' This operation was performed when the gut was much distended, in spite of the fact that he had tried to empty it before the enterorrhaphy. The suture, however, did not give way; but he believed that the good result was in part to be attributed to the fact that the patient was young and vigorous, a great advantage in view of the danger of intestinal paralysis which so often supervened in older subjects.

Mr. Marmaduke Sheild asked for further details in respect of the method of suturing, etc., in the lateral anastomosis, these being of the greatest importance. He observed that they were probably not yet at the end of their knowledge as to how to join the intestines laterally or end to end. In his own comparatively slight experience of these operations he had invariably made use of his fingers. He thought it was important they should learn how to join the intestine without apparatus of any kind, because very often these operations had to be performed unexpectedly under circumstances which rendered it likely that the required apparatus would not be at hand, as in the course of an abdominal operation undertaken for some quite different condition.

Mr. Bidwell asked the author whether he passed a row of sutures through the mucous membrane as well as employing the Lembert suture. He mentioned that in the last operation where he had performed Maunsell's method he had found, on reducing the anastomosis, that there were some points of mucous membrane showing, and so it was necessary to insert a line of Lembert suture in addition to Maunsell's

procedure. Under these circumstances he felt inclined, in his next operation of the kind, to use only a row of Lembert suture, and not take the trouble to carry out Maunsell's method, which necessarily much prolonged the operation. With regard to freedom from stenosis after anastomosis, he mentioned a case upon which he had operated two and a half years ago. He saw the patient last month, and there was not the slightest indication of any constriction of the intestine. Referring to Mr. Lockwood's observation on the greater safety of anastomosis of the small intestine, he recalled that the same remark had been made by Billroth, who had observed that all his operations on the small intestine had been successful, while his operations on the large intestine had been so unsuccessful that he doubted whether they were justifiable. Without going as far as that, they could not but acknowledge that operations upon the large intestine involved much more risk.

Mr. Wallis referred to two or three cases that he had seen in which removal of too large a portion of mesentery had led to gangrene of the anastomosed intestine. He presumed there was some very good reason for removing this wedge-shaped piece since it had been generally adopted, though Mr. Greig Smith had devised another method which had been recently described before them by Mr. H. Allingham. The danger attending the removal of too much mesentery was obvious. Moreover, a great deal of time was taken up in tying all the small vessels after such removal, and this of itself constituted a great objection.

Mr. Cripps, in reply to Mr. Bidwell, said he could not accept Billroth's statement as to his results of his operations on the small intestine being uniformly successful. He explained that he carried out Maunsell's method in the first case, but in the second he had discarded it because it greatly prolonged the operation, and was moreover quite unnecessary. There was no difficulty if the intestine was empty, and clamped above, to make the anastomosis end to end, uniting the ends by Lembert suture. He began by passing a row of sutures a quarter of an inch from the cut and carrying it up about an eighth of an inch through the tissues, including the peritoneal and muscular coats only. It was easy enough to pass the first half of the sutures, but it was rather more difficult when one had actually closed the others underneath. On the whole, however, it took him less time than by Maunsell's method. It was very important after doing the suturing to go round with the probe to make sure that there was a perfect junction. In respect of lateral anastomosis every operator had his own particular plan which he believed to be the best. His own plan was to pass very fine sutures (00 silk) through the visceral peritoneum of the bowel, taking in a cut a sixth of an inch of tissue. He passed them through the first piece of the bowel opposite the mesentery, not tying them until he had inserted the others. It required in all about 24 stitches for 4 inches of bowel to be joined. When all the sutures had been inserted he tightened them. Then he cut the stitches and passed others through the visceral peritoneum on the opposite side, about half an inch from the original line, and, last of all, he made his incision along the bowel, between the two rows of sutures, the first line having already been drawn tight. Then one after the other he tightened the second row. In respect of Murphy's button he said that when the inventor was in London and explained his method he had called attention to four cases in which death had followed their use. Two of them he believed would probably have died under any circumstances, but the two others died not of the operation but from

complications due to the presence of the button. In one death took place on the eighth day, when the junction was found to be all right, but the button had passed down 6 inches, had become wedged, and had ulcerated through the wall of the intestine into the peritoneal cavity. In the second case the tissues included in the button had sloughed opening up the peritoneal cavity. These cases had led him to decide never to make use of these murderous instruments. He admitted that the term wedge-shaped piece of mesentery was perhaps rather misleading. What he had done was to cut away a sloping piece of mesentery, so that the edges would join readily. The piece of mesentery had in any event to be removed, so that it was only a question of the shape of the piece to be taken away.

## SENILE DECAY—ITS PATHOLOGY AND TREATMENT.

By T. D. Savill, M.D., M.R.C.P. Lond.

(*Abstract.*)

Dr. Savill's paper was based chiefly on 409 cases of death in persons of 60 years of age and upwards observed during the seven years that he was medical superintendent of the Paddington Infirmary, the enquiry having been begun in 1887. The first part of the paper dealt with the normal and abnormal symptoms of old age, among the former being weakness, nervous symptoms, the senile heart, the senile pulse, and various external signs, among the latter being "senile vertigo," "senile epilepsy," and, lastly, conditions attended with high arterial tension. These conditions he considered dependent upon certain changes occurring chiefly and uniformly in the muscular coats of the arteries, and he referred to communications already made by him on the subject showing this condition of "hypermyotrophy" to be independent of renal disease. Dr. Savill next considered the characteristics of disease as it occurred in aged persons. Pneumonia took the leading position as a cause of death, with 17 per cent.; then cancer, 15·5 per cent.; then bronchitis, 11 per cent.; then "senile decay," 9 per cent.; then contracted granular kidney, 6 per cent.; and pulmonary tuberculosis, 5·5 per cent. The figures showed that tubercle was not so rare in the aged as was generally believed. He concluded by pointing out the importance of the early recognition of high arterial tension and of its treatment by appropriate remedies. Nitro-glycerine was of great value in the treatment of the pathological degree of the arterial change—a

point supporting his contention that it was the muscular tissue which was at fault.

A large number of photographs, pulse-tracings; and microscopic specimens were shown.

Professor CLIFFORD ALLBUTT said he was much interested in the paper because many of the facts collected by the author with extraordinary industry and precision bore upon an inquiry to which he had himself for many years devoted considerable time and attention. Doubtless similar observations had been made by others, namely, that there is a substantial malady indicated by a rise of blood pressure in advanced life, examples of which he had been collecting for many years. He had picked from the author's paper, which dealt with the larger subject of senile decay, such pathological observations as appeared to bear upon his own cases. The author indeed seemed to think that arterial decay is normal in all old people, but he did not accept the view that the arteries necessarily undergo degeneration in old age. Whether as determined by the sense of touch, which is no doubt but partially applicable, or by the more complete revelations of necropsy, he could recall many instances of persons of 70 years of age and upwards whose arteries appeared to be elastic and free from degeneration, but he repeated he had made no microscopical examination in such cases. He was, therefore, not prepared as yet to admit that any form of arterial degeneration is essential to old age. He would now turn to the consideration of a malady which occurred not uncommonly in elderly persons, and is attended by an increase in the arterial blood pressure. He objected to the persistent use of the terms "pulse tension" and "blood tension." He pointed out that "tension" cannot be applicable to the blood or a wave of blood. The tensions exerted on an artery may be resolved into two: the one transverse, and the other longitudinal; but these depend upon calibre and other conditions, and are incalculable; tone and tension are hard to distinguish. That which is usually more or less calculable is the pressure of the blood within the vessel. But in estimating this he did not attach much importance to sphygmograms, because the pressure values given by the sphygmograph have scarcely even an approximate accuracy. With the finger on the artery, however, the blood pressure can be ascertained fairly well. Now, the symptoms in the elderly, associated with the rise of blood pressure to which he had called attention, point chiefly to perversion of the nervous system. Dr. Savill had well described the symptoms of such cases: fretfulness, insomnia, melancholia, etc. He was unable to explain how this gradual increase in the blood pressure arises, but of its not infrequent occurrence he had no sort of doubt. He had been unable to get necropsies on cases of this kind because the malady lasts many years, and happily admits of much relief or even of cure; so that one loses sight of the patients. He had estimated the urea and uric acid in these cases, but had discovered nothing worthy of note. He excluded, of course, all cases in which there was even a suspicion of renal disease; and "renal inadequacy" he regarded as a fiction. In the majority of the cases the heart is dilated and hypertrophied, and the output of blood is much reduced, so that the ventricle never empties itself. Thus the ventricle dilates and the nutrition of the body begins to fail. These patients, moreover, if not intelligently treated, die with the usual symptoms of heart failure, dropsy, etc. This senile rise of

blood pressure has been attributed to an increase of the density of the blood in old age ; but, on the contrary, the density of the blood falls in advancing years (Lloyd Jones). Another explanation is that *pari passu* with the atrophy of tissues there is a corresponding diminution of capillary areas ; but no such diminution would produce persistent rise of arterial blood pressure, seeing that even ligation of a large artery produced but temporary effects in this direction, if any. Changes in blood mass are quickly readjusted. He also excluded from this category all cases presenting discoverable signs of atheroma. On the other hand, even when the high blood pressure was of long standing, he had been surprised in not a few cases to find how little the arterial system had suffered. The arteries, like the heart, under the dilating influence of high blood pressure undergo, as Dr. Savill has shown us, a compensatory hypertrophy of the media, but the condition in fairly early stages is clinically remediable, and he had had the satisfaction of seeing many such cases cured by the administration of sulphate of magnesium, iodide of potassium, and blue pill. This treatment soon reduced the blood pressure to about normal, but it was very apt to recur on the discontinuance of the drugs ; still it will again yield to a further course of the treatment. He referred to the case of a woman, whom he had observed from the age of 78 to 85, in whom the excessive pressure had been again and again reduced, and finally cured ; and who had ultimately died of some intercurrent disease. He preferred to call this condition one of senile plethora or senile hyperpiesis, *i.e.*, a tendency in some elderly people to a heightened blood pressure due to unknown causes. He concluded by a few remarks on the similarity of this condition to suppressed gout, remarking that it is rare for persons who suffer from suppressed gout to suffer from articular gout ; the two maladies being allied, but not the same. It is remarkable that in senile plethora cerebral hæmorrhage does not often occur, though apoplectiform attacks are not uncommon. In this disease (arterial hypermyotrophy) the hypertrophied media seems—so long as atheromatous or other degenerative changes do not supervene—to be a barrier against the formation of miliary aneurisms upon the cerebral arteries.

Dr. C. W. Chapman called attention to the occurrence in old people of a peculiar form of pneumonia. A small patch would make its appearance in one lung followed by other patches elsewhere, and successively involving portions of the other lung, each attack going through a more or less regular but a febrile course. He asked the author whether he had met with instances of this form of pneumonia among his cases.

Dr. Savill, in reply, thanked Professor Allbutt for his valuable criticisms, and asked whether the urine in all of his cases had been found to be normal. (Professor Allbutt replied in the affirmative.) He was especially indebted to him for his suggestions as to the possible causes of this high tension, which undoubtedly corresponded in a very remarkable manner with what he himself had met with in the cases of "arterial hypermyotrophy." In regard to those cases having a pathological degree of the senile changes in the tunica media, he suggested that the rigidity of the big vessels was really the first and most important causal factor. One could recognise an alteration in the big vessels during life, and at a much earlier period than the corresponding alterations in the smaller vessels. Many of his cases had been five or six years under observation, from day to day, and many of them showed signs of the change in the great vessels long before similar

changes were manifested in the smaller ones. He suggested that the shock of the blood being thrown directly through the rigid walls of the great vessels was quite sufficient to determine by traumatism changes in the tunica media of the smaller vessels leading to hypertrophy, and afterwards to degeneration and dilatation. As another possible cause of arterial hypermyotrophy he mentioned prolonged periods of high arterial pressure in previous times of life ; in other words, it was a physiologico-pathological process, an increase in the amount of muscular tissue consequent on increased strain, the vessels undergoing hypertrophy just as the bladder undergoes hypertrophy when there is urethral stricture. In reply to Dr. Chapman he had seen plenty of examples of the chronic latent form of pneumonia alluded to by him ; indeed, its existence was often not discovered until after death.

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*April 26th*, 1897.

## ON SENILE TUBERCULOSIS AND SUBCUTANEOUS (TUBERCULOUS) ULCERATION.

By Howard Marsh, F.R.C.S. Eng.

Several examples of tuberculous disease occurring in old people have, within the last few months, been under observation in the wards of which I have charge in St. Bartholomew's Hospital. I hope it may be of interest if I briefly relate some of them, and make some reference to the general question of senile tuberculosis. Some discussion appears to be desirable, for although Sir James Paget's original essay on senile scrofula was published in 1867, in some of the principal manuals of the present day the subject is not even mentioned, while in others it is referred to in so cursory a manner as to convey the impression that it is of little importance in the practice of surgery. My own experience has led me to believe that the opposite of this is, in reality, the case. The disease in its various manifestations is frequent rather than rare ; its early recognition is often difficult ; indeed, it is apt to be overlooked by those who regard it as a mere pathological curiosity. Prognosis is generally very unfavourable, and the treatment raises questions of considerable gravity from the patient's point of view. Among the cases met with have been the following :—

Case 1. *Large double iliac abscess, probably dependent on Pott's disease.* —The patient, a man aged 70 years, was admitted into St. Bartholomew's

Hospital about six weeks ago with two iliac abscesses of very large size; that on the left side was already pointing, and proved, when it was opened, to contain about two pints of pus. The cavity was scraped and drained. This abscess is now very nearly healed. The second abscess will be opened in a few days.

Case 2.—A woman, aged 74 years, was recently admitted for an iliac abscess on the right side. Here, as in the former case, there was no angular curvature or other conclusive evidence as to the precise origin of the abscess; but it must be remembered that angular curvature may be absent, notwithstanding the presence of advanced Pott's disease in patients of middle or advanced life. In such patients the vertebræ are so massive and formed of such strong bone, that, although excavation occurs, their framework often resists deformity; while in other cases the disease takes the form of a spreading periostitis, and excavation is either absent or present to only a slight extent. It seemed probable that this patient and the patient in Case 1 were suffering from Pott's disease.

Case 3.—Last year a woman, aged 69 years, was admitted into the hospital suffering from spinal disease. On examination she was found to have a very marked angular curvature at the level of the eighth dorsal vertebra. The spinous process of this vertebra was sharply prominent and the column above this point for 8 or 9 inches was perfectly straight. The patient said that for the previous 12 months she had suffered from pain in her back and round the sides of her trunk, and that the deformity of the spine had been progressing for nine months. She could now move and walk only with difficulty, and was obliged to lie down during the greater part of the day. This patient, who came from a distance, was supplied with a poroplastic jacket and discharged, and I heard no more of her. That the angular deformity in this case was due to tuberculosis seemed clear. The alternative view that it depended upon new growth—sarcoma or carcinoma—appeared to be negatived by the absence of severe pain, and of paralysis, and also by the period over which the case had extended; for malignant disease of the spine is generally fatal within nine months, and this patient, although her spinal disease had existed for more than nine months, was still in very fair general health and condition.

Case 4.—The following remarkable case has lately been under observation. A woman, aged 72 years, developed what was evidently tuberculous disease of her left ankle. The joint became the seat of a slowly increasing fusiform swelling involving it in all its aspects. The patient was unable to bear any weight upon the foot and the muscles of the calf underwent marked atrophy. In the course of three months suppuration occurred, and in spite of free incision, scraping, and drainage, pus burrowed widely amongst the tendon sheaths of the deep muscles. Amputation was performed at the junction of the middle with the lowermost third of the leg. The stump healed favourably, although very slowly. A year afterwards the lower third of the left ulna became the seat of extensive tuberculous periostitis, attended with dusky redness and œdema of the skin and considerable pain. Free incisions were made and the granulation tissue was scraped away. The wound slowly healed and the patient remained well for three years. At the end of this time her right ankle became involved in considerable swelling, which seemed

obviously to depend upon tuberculous synovitis. Within two months the joint had become disorganised, and the ligaments had been so far destroyed that free lateral movement was easily produced. Suppuration occurred, and as the tissues in the lowermost third of the leg were becoming œdematous, amputation was performed 6 inches above the joint. The patient, who was now 76 years of age, bore the operation perfectly well and the wound soon healed. On dissection the joint was found to have undergone extensive tuberculous disease. The synovial membrane was converted into a thick layer of pulpy granulation tissue. The articular cartilage was almost destroyed, the bones in places were somewhat deeply eroded, and the principal ligaments had in great part disappeared. Microscopic examination showed that the disease was beyond question tuberculous in character.

Case 5.—There was recently in the hospital a patient, aged 72 years, who had been suffering for 15 months from tuberculous disease of the outer and front portion of the left foot. On examination, the metatarso-phalangeal joint of the little toe was found to be disorganised and occupied by granulation tissue, and a sinus led into the substance of the external cuneiform bone, which was in a state of rarefying osteitis.

Case 6.—Two years ago a man, aged 56 years, was under treatment for what at first appeared to be osteoarthritis of his right knee. The joint had recently become a little swollen, stiff, and painful. There was some grating on movement, and the muscles of the thigh were markedly wasted. The knee, however, became more and more swollen, the synovial membrane was thickened and pulpy, and the skin over the joint was dusky and abnormally warm. Within three weeks of the patient's admission, and about two months after the commencement of the disease, the joint suppurated, and, in spite of complete rest, went from bad to worse, and was amputated three weeks later. On examination it was found extensively disorganised by tuberculous disease. The synovial membrane was converted into a thick layer of granulation tissue, the articular cartilages were eroded, and reduced to thin wafer-like plates, detached from the bones. The bones themselves were in some parts deeply ulcerated. The patient quickly recovered from the amputation.

Several other examples of senile tuberculosis which I remember to have seen might be related, but it will be enough merely to mention them. A patient, aged 65 years, with tuberculous epididymitis; a man aged 68 years, with enlarged and suppurating cervical glands; a man aged 75 years, with rapid disorganisation of the wrist joint, requiring amputation; a woman aged 67 years, with tuberculous caries of the metacarpal bone of the thumb; a woman aged 62 years, with tuberculous disease of the axillary glands, imitating carcinoma; and tuberculous disease of the kidney in a woman aged 58 years.

The symptoms produced by senile tuberculosis are identical with those met with in the more severe examples of the corresponding forms of tuberculous disease in the young—*e.g.*, in

tuberculous disease of the tarsus in a person aged 70 years, the character, position, and extent of the swelling, the congested and dusky condition of the skin and the appearance of any ulcers that form—all these are indistinguishable from the like features when they are observed in a patient aged 10 years. The main difference —needless to say, it is one of great importance—between tuberculosis in the old and in the young is that while in the young, if adequate treatment is adopted early and properly carried out, recovery is the rule; in the old, in spite of the best known treatment, the progress of the affection is in the majority of cases from bad to worse. In a joint, for example, the synovial membrane rapidly becomes widely infiltrated with tuberculous products, which quickly undergo caseation. The articular cartilage is destroyed and suppuration takes place. This leads to the formation of large burrowing collections of pus and complete disorganisation of the affected joint, so that amputation is the only course that can be recommended. In other parts—*e.g.*, the testis or the lymphatic glands—early suppuration, with breaking down, occurs. The unfavourable progress in these cases is so constant that I do not myself remember to have seen repair take place in a tuberculous joint in any person over 50 years of age. The disastrous results that will probably follow when one of the large joints, such as the hip, is involved was well shown in the following case, which came under notice five or six years ago. A woman, aged 55 years, had tuberculous disease of her hip-joint, which was, for the first few weeks, considered to be, and was treated as, "sciatica." Afterwards the case was treated with absolute rest, secured by a Thomas's splint and weight extension. The joint, however, grew steadily worse; in four months suppuration occurred, and matter was found both in Scarpa's triangle and under the tensor fasciæ femoris, and later under the glutei. The limb became rotated outwards and shortened, and at last it became clear that the head of the femur and the upper border of the acetabulum had been absorbed, so that the upper end of the femur could be pushed up and pulled down on the pelvic wall through a range of 3 inches. Thus this joint within about eight months became a complete wreck. The patient died a few weeks later from phthisis and exhaustion. The best treatment, although it will often be found of little avail, is from the first to place the affected joint at absolute rest; to secure the best

conditions for preserving the patient's general health; to open abscesses as they form, with the most rigid precautions against septic changes in the wound; and to resort to amputation when it is found that the progress of the case is in a persistently downward direction. Amputation, if means are taken to prevent hæmorrhage, and if an aseptic condition is maintained, will be perfectly well borne in the case of all the smaller joints and often of the knee. (In the case of the hip, of course, the idea of amputation cannot reasonably be entertained, nor would excision be a proper step.) After amputation has been performed the patient may, as I have several times seen, recover and long maintain perfectly good health. The list of cases of which I have given the foregoing brief account conveys a repetition of Sir James Paget's statement that there are no structures which in the young appear to be "seats of election" of scrofula (or, as would now be said, of tuberculosis) in which the affection is not met with in people over 60 years of age.

Another form of tuberculous disease which is seldom, if at all, referred to in the current manuals of clinical surgery is "subcutaneous ulceration"—a name which, like that of "senile scrofula" (now tuberculosis), we originally owe to Sir James Paget. The nature and course of this affection will be most readily indicated by two or three examples.

Case 7.—Two months ago a boy, aged 9 years, was admitted into St. Bartholomew's Hospital with a sinus on the inner side of his popliteal space and some ill-defined thickening over the neighbourhood of the internal condyle of the femur. These appearances suggested that the case was one of tuberculous disease of the lower end of the femur, attended with suppuration. On passing a probe, however, through the sinus, no bare bone could be detected, and, indeed, it was apparent that the probe nowhere passed through the deep fascia, but that it ran easily in various directions close beneath the skin, which, over the most prominent part of the internal condyle, was scarcely thicker than writing paper. The probe also passed in the subcutaneous tissue nearly half-way down the leg, and its point moved horizontally through a considerable area, showing that the skin was widely detached. The nature of the case as one of wide undermining of the skin by "subcutaneous ulceration" was now clear. The whole of the undermined area was therefore exposed by free incision of the skin; the flaps thus formed were raised and turned back; the granulation tissue was thoroughly scraped away with a Volkmann's spoon; the wound was dusted with iodoform, and the flaps were replaced and fixed by sutures. Sound healing by primary union occurred except in the immediate neighbourhood of the original sinus. Here an exuberant crop of tuberculous granulation tissue remained, and a second scraping was necessary. Soon afterwards sound healing took place.

Case 8.—A boy, aged 10 years, was admitted some years ago into the Hospital for Sick Children, Great Ormond Street, with three sinuses, 3 or 4 inches apart, over the tibia. The orifices of these sinuses were filled with protruding granulation tissue, and their general appearance, together with some swelling of the soft parts, seemed to indicate plainly enough that the case was one of necrosis of the tibia. On proceeding to operate, however, I found that the deep fascia was everywhere intact; but the subcutaneous tissue for some distance around was converted into granulation tissue, so that the skin was completely undermined. In places it was very thin. Free incisions were made, the granulation tissue was scraped away, and the flaps were replaced and sutured. The wound healed in about three weeks.

Case 9.—A youth, aged 18 years, was in St. Bartholomew's Hospital two years ago with four sinuses over his occipital region which from their position seemed at first sight to suggest necrosis of the occipital bone. These sinuses had existed for about nine months. On examination it was found that the bone was nowhere exposed and that the sinuses led down merely to the areolar space beneath the occipito-frontalis. The pericranium was quite normal. The probe travelled freely in all directions over a nearly circular area about 3 inches in diameter. Incisions were made and the scalp over this area was turned up, the granulation tissue was scraped away, and the wound was treated as in the former cases. Healing quickly occurred, and when the patient left the hospital, three weeks later, there remained only three short sinuses which promised to be soundly healed in the course of a week or two.

The explanation of this particular form of tuberculous disease appears to be the following:—When the tuberculous process is established in the subcutaneous tissue it extends in a horizontal direction, because the subcutaneous tissue is loose, vascular, and easily invaded, whereas both the skin and the deep fascia, especially the latter, owing to their comparative firmness and toughness, tend to withstand infection. The same fact is illustrated by the ordinary undermining of the skin in superficial tuberculous ulceration. It is illustrated also by the fact that in rodent ulcer the process extends in the subcutaneous tissue further than it does in the skin itself, so that for the complete removal of this disease it is necessary to cut well beyond the limits to which the skin appears to the naked eye to be involved. In fact, in subcutaneous ulceration, as in other instances, the undermining of the skin is due to the fact that the process of infection spreads most readily in the direction of least resistance.

Mr. W. Armstrong (Buxton) confirmed the author's remarks as to the difficulty of early diagnosis in these cases. He said that during the last year he had met with three cases of the kind, sent to him for special treatment, of rheumatoid arthritis, in whom tuberculous disease of joints

developed within a short time of their arrival. In one case there was a hard annular band around the middle part of the femur, which he was assured was not there when last seen by the medical attendant one week before coming to Buxton. This suppurated after a time. He remarked that it was very easy to make errors of diagnosis in the early stage of such cases.

Dr. Colman said that two or three years ago he had examined *post-mortem* several cases of spinal caries in persons about 60 years of age within a short period. Two of the cases were supposed before death to be cases of tumour. In both cases there was extensive disease of the vertebræ but no curvature. In other cases in adults there had been no prominence over the spine though there was extensive disease of the vertebræ, and in such cases it was quite easy to demonstrate thickening and hardening of the shell of bone that was left. Mr. Marsh's explanation of apparent prominence of a spinous process as due to unduly short neighbouring spines appeared very probable. He observed that the author had omitted one possible cause of curvature, viz., pachymengitis, and he recalled one case in which there was distinct prominence over one dorsal spine, and the presence of caries was considered certain until *post-mortem* the real condition was shown. He had also seen well marked angular curvature in infantile scurvy. He added that he had had occasion to examine a case of aortic aneurism, with absorption of two vertebral bodies, but in that case there was no curvature. The articular processes were very much thickened and buttressed, and it was evident that this had prevented any displacement of the bones.

Dr. Hill referred to a case that had come under his notice some years ago when assistant pathologist at St. Mary's Hospital. The patient was under the care of Sir William Broadbent, and was admitted to the surgical wards as a case of psoas abscess. It was undoubtedly a case of psoas abscess in an elderly man, but the patient was transferred to the medical side because an aneurism of the abdominal aorta was discovered. *Post-mortem* they found five vertebral bodies almost completely excavated, yet there had been no paralysis and no angular curvature, because the articular and indeed all the processes of the vertebræ had undergone pronounced hypertrophy and ankylosis. There was a condition practically resembling Pott's disease for all that, *i.e.*, a gigantic abscess with wide-spread disintegration of the vertebral structures, the abscess extending nearly down to the knee.

Mr. G. R. Turner asked the author whether syphilis ever closely imitated senile tuberculosis. He referred to a case which had come under his observation some years ago which, at the time, he thought was undoubtedly tuberculous, in an elderly subject, and he contemplated performing a tolerably radical operation. Fortunately for the patient, just at that time the throat began to slough extensively, and this put them on the right track. The resemblance with tuberculous disease was very close indeed.

Dr. Thorowgood asked whether, if the subcutaneous tissue in these abscesses were scraped, one would find the tubercle bacillus? He asked this question because he had at present a case under observation at the Victoria Park Chest Hospital, of an elderly man with ulceration of the vocal cords together with tubercular infiltration of both apices. This patient had lately developed on the back of one hand an inflammatory and very painful affection beneath the skin. This he had suggested should be scraped and an examination was to be made of the tissues in order to search for the tubercle bacillus.

Mr. Marsh, in reply, observed that there were many cases in which they were justified in believing the disease to be tuberculous on other grounds without its being possible to demonstrate the fact; indeed, it was often very difficult to demonstrate the exact nature of the disease. He thanked the Secretary for his reminder about syphilis and admitted that there was often a difficulty in distinguishing between the two, especially as the two were not unfrequently associated.

## THE VALUE OF AN EXCLUSIVELY RED MEAT DIET IN CERTAIN CASES OF CHRONIC GOUT: A CONTRIBUTION TO THE STUDY OF AUTO-INTOXICATION.

By Wm. Armstrong, M.R.C.S., J.P. (Buxton).

About seven years ago I saw two patients, one suffering from severe chronic gouty arthritis, the other from recurrent uric acid calculi, in both of whom, after all routine treatment had failed, cure was effected by the so-called "Salisbury" treatment, prescribed and directed by a lady. Taking for many weeks *nothing* but red meat and hot water, these cases certainly made wonderful improvement, which, in spite of a gradual return to an ordinary dietary, persists to this day.

It seemed to me that this treatment possessed some element of usefulness, but that it ought neither to be used indiscriminately nor without medical guidance. The only English book on the subject, which quickly obtained, and still has, a large circulation among the laity, was written in a tone and spirit which did not encourage the medical profession to give this method a thorough trial; but the patients whom I had tried in vain to help, and for whom I had sought the best special advice without good result, were so evidently benefited that I have since then given this diet a careful trial, more especially during the last three and a half years, when I have been afforded in Buxton exceptional opportunities of selecting suitable cases for its use and of watching its effects.

The indefatigable and painstaking work of Dr. Alex. Haig, and the careful and ingenious experiments of Dr. Luff, which latter, placed before us in the recent Goulstonian lectures, have excited so much interest, seem to indicate that the red meats or their salts are, *in themselves*, harmful to the gouty. Having for the last two years been working on the subject of auto-poisoning in relation to

the causation of gout, some forms of rheumatoid arthritis, and allied ailments, I had been led to doubt whether that is so, or whether it is the admixture of food of other classes with the red meat which causes complex chemical changes leading to the formation (whether in the blood, tissues, or kidneys) of an excessive quantity of uric acid.

The able and suggestive work of Dr. Lauder Brunton has done much to stimulate medical opinion on this subject, and has given us a better understanding regarding the chemical changes which take place during digestion, and their clinical significance; while the researches of Gautier and Bouchard have added to our knowledge of "the self-poisoning of the individual."

The course of treatment, which lasts from four to twelve weeks in its strict form, is as follows—subject, of course, to such modifications as the condition of the patients and their progress demand :—

The bowels having been thoroughly relieved, the patient begins to drink from three to five pints of hot water daily : the temperature of this should be from 100° to 120° F.; a little lemon-juice should be added, and it should be drank in sips. One pint should be taken at least one hour before each meal, and the same quantity at bed-time.

The food should consist at first of beefsteak, from which all fat, gristle, and connective tissue have been removed : this should be thoroughly minced, a little water being added, and then warmed through with gentle heat until it becomes brown in colour, and perfectly soft and smooth; it can be eaten thus, or else made up into cakes and cooked on the grill. On the minced meat may be put the poached whites of from two to four eggs per day. The only bread allowed is a half slice, cut very thin and thoroughly torrified in the oven, with each meal. A little salt or pepper may be added to the meat, or a little mustard freshly mixed with lemon-juice. As the treatment progresses, a little of the steak may be given grilled, or a grilled lean mutton chop; very little fluid should be given with the food. The quantity of meat given is from 1 lb. to 4 lbs. in the 24 hours. During the latter part of the treatment a grilled cod steak is often ordered. Alcohol should be avoided; if absolutely necessary, a little whisky with cold water may be given with food, a cup of weak tea with a slice of lemon, or a cup of black coffee.

The immediate results experienced are a feeling of hunger and a difficulty in drinking so much hot water; these difficulties soon disappear, although the feeling of "emptiness," due to the stoppage of the carbohydrates, often persists. There is also a marked diminution of the abdominal girth, and a more or less rapid loss of flesh, especially in those who are fat and flabby; but walking is much easier, and the breathing is often greatly relieved. The urine at first is often scanty and loaded with urates, which indicates either the necessity of adding some freshly-prepared citrate of potash to the hot water given in the early morning and late evening, or else an increase in the quantity of water drank. The bowels become constipated, the motions being scanty and dark-coloured: an aperient is often necessary. After the first two or three weeks the patient begins to feel weak and easily tired, and it is wise at this stage to limit the amount of exercise taken, substituting in some cases a little massage; but before the conclusion of the course the strength returns, and stout patients especially feel the benefit of the diminished weight.

The changes due to the treatment are very marked. The swelling of the joints diminishes, the aching and soreness being greatly relieved, and the mobility considerably increased. The patient becomes brighter, and work, both mental and bodily, is done with pleasure instead of with trouble and effort; acidity, pyrosis, heaviness, distension, and oppressed feelings after food disappear; flatus is greatly diminished in quantity, and becomes much less offensive; and the perspiration loses the disagreeable odour so frequently present in these cases. The urine becomes more copious and clearer, and does not give the reactions to nitric acid and ferric chloride mentioned later, and the oxalates and uric acid are materially decreased. The indications for the adoption of this treatment seem to me to be:—

(1) Obstinate and refractory chronic gouty arthritis.
(2) Recurrent uric acid calculi.
(3) Frequent and intractable migraine.
(4) Obstinate gouty dyspepsia.

More especially if attended by any of the following symptoms:—

(*a*) Amylaceous and intestinal dyspepsia.
(*b*) Acidity, pyrosis, and flatulence.
(*c*) Heaviness and irritability after food.

(*d*) Excessive formation of sulphuretted hydrogen in the large intestine, disagreeable-smelling perspiration, and offensive breath, and the following conditions of the urine:—
(*e*) Persistent lithiasis.
(*f*) Oxaluria.
(*g*) Excessive formation of indican.
(*h*) Purple or red reaction with nitric acid.
(*i*) Wine-red reaction with ferric chloride.

I am sure that where either damaged kidneys or a weakened heart are present exceptional care should be taken; in fact, many of these cases are quite unfit for the treatment. I do not say all advisedly, as I have seen several cases in which both unsound kidneys and heart have been greatly relieved; but such patients require daily watching and the exhibition of great care, experience, and discretion. The above-mentioned symptoms, I would venture to submit, bring us face to face with the great question of auto-poisoning. I have been greatly impressed by the sudden subsidence of severe chronic gouty arthritis in five cases. In three of these it followed what were described as "very severe bilious attacks"; and in two it came on after severe and spontaneous attacks of diarrhœa; the relief in these was immediate and complete, and for several weeks the patients kept better, but gradually the old symptoms began to return, and in three months after the sudden improvement were as bad as ever. No doubt also many of us have observed how severe attacks of deltoid rheumatism of many weeks' standing have been at once removed by a mercurial purgative. These facts seem to me to point to the possibility of poison generated in the alimentary canal setting up affections of the joints. Bouchard describes certain articular enlargements which he contends are almost always present, more or less, in cases of gastric dilatation. That a very considerable number of ptomaines, leucomaines, and toxins are formed in the alimentary canal seems to be beyond doubt, as is also the fact that they are taken up by the blood and appear in the urine. A most important discovery was made by Gautier in 1885, when he found that poisonous alkaloids were continuously being formed in *healthy* men and animals by decomposition in the intestinal canal during the process of digestion, or in the blood and tissues generally, by the metabolism which occurs during the functional

activities of life. It seems to me that if we have either an excessive formation or a deficient elimination of these toxic products we get a condition of self-poisoning which may be either slight and transient, severe and lasting, or, what I believe to be more common still, a daily storage of small quantities of noxious matter which gradually undermines the health, leads to deterioration of the nervous system, and disturbance of the nutrition of some or all of the structures of the body; and it seems likely that vital action is much more quickly interfered with through the accumulation of waste products within the organs, than by any want of nutriment of the organs themselves.

Aitken, writing on gout and rheumatism, says: "They are such diseases as become developed under the influence of agents generated within the body itself through the continuous exercise of its functions in the daily course of nutrition, development, or growth." That marked symptoms of poisoning do not more frequently occur is due to physiological processes continually going on in our bodies—(*a*) the elimination of the poisons by the kidneys, liver, skin, lungs, and the lining membrane of the bowels; (*b*) their destruction by oxygenation, the leucomaines being burned up in the blood.

That the urine contains toxic products was made clear by the researches of our esteemed President concerning so-called "catheter fever" when he gave his adhesion to the following important conclusions:—

(1) In health alkaloids exist in the living subject.
(2) These arise in the intestinal canal through the action of putrefactive intestinal organisms.
(3) The alkaloids of normal urine represent a practical part of these intestinal alkaloids absorbed by the intestinal mucous membrane and excreted by the kidneys.
(4) Diseases augmenting intestinal alkaloids augment in consequence the urinary.

Dr. Lauder Brunton suggests that one set of poisons is probably allied to uric acid and includes guanidine, methyl-guanidine, xanthine, and other derivates of urea. A very interesting statement has been made that while the greatest part of the products of albuminous waste is in health secreted by man in the form of urea with very little uric acid, in disturbance of

nutrition (as by self-poisoning, affections of the nervous system, &c.) the proportion of uric acid is enormously increased. It has also been suggested that as pyrocatechin, a body of the aromatic series frequently found in urine, is known to have a poisonous action on the spinal cord, it may probably interfere with the joint centres, and thus set up reflex trouble in the articulations.

If you agree with the opinion so generally held that the various toxins are formed from the decomposition of animal food, it will not be at all clear to you how a meat dietary, even with the aid of hot water, can alter this condition; but I would ask you to note that Brunton and Macfadyen have shown that "the same bacteria which form a peptonizing enzyme on proteid soil can also produce a diastatic enzyme on carbo-hydrate soil," and, further, that "the same bacilli when grown in starch paste instead of in gelatine or in beef tea produced a different ferment which would convert starch into sugar but which would not act upon gelatine."

Bouchard, again, strongly condemns bread, with the exception of the outer crust, on the ground that the process of baking, although it has interrupted the fermentation of the dough, has not stopped it altogether; and that this fermentation reappears when moisture and temperature are again favourable to it; and from this are formed acetic and butyric acids, leucin, tyrosin, and phenol in large and poisonous quantities.

The difficulties of a mixed diet of meat and carbohydrates, in the gouty state, are that the latter are so much more easily oxidized and are, therefore, more readily consumed in the system than the albuminous compounds, and thus prevent the disintegration and oxidation of the latter; and also that vegetable albumen less easily undergoes disintegration than animal albumen.

In gout, disintegrative changes in the albuminates are arrested, and insufficiently oxidized substances remain in the blood, and in this connection it is of importance to note that under a diet of animal food more oxygen is retained in the system than when starchy foods are taken in excess.

The microbes subsisting on starchy food, milk, and cheese may be got rid of by a purely meat diet and *vice versâ*; the offending microbe being starved out.

I would now ask the question whether, from the foregoing facts and theories, it is possible to suggest any scientifically satisfying reason for using this dietary? And, in reply, I would submit

that meat taken as suggested is easily and readily digested; that the process of digestion is more complete and perfect, and is almost entirely free both from the processes of fermentation and putrefaction, and from the toxic products thereof; and also that there is a more complete oxidation of the food taken, and, therefore, less waste and morbid material remaining in the system. Whatever poison does remain is more promptly eliminated by diuretics than by any other means, and no diuretic is more efficient than a free supply of water, especially when taken into a comparatively empty stomach. The exceptional power of water as an eliminator has been well shown by the researches of Sanquirico into the lethal doses of various drugs. There can be no doubt also that water has a direct flushing effect on the stomach, kidneys, and liver.

It has been suggested to me that, while a very much improved condition of the general health might be brought about by the stimulating effects of a diet of red meat, the uric acid in the system would be driven into the joints to their great detriment, and that when this diet was discontinued most serious relapse would occur, the last state of the patient being *much* worse than the first. I have watched this point most carefully, and in a number of cases I have gradually brought the patient down from a meat diet to a carefully arranged mixed dietary, and in eight cases still further in to the meat free dietary, as recommended by Dr. Alex. Haig, without any such result being observed. Had time permitted I should like to have submitted to you the detailed notes of cases of chronic gout and of recurrent renal calculi treated by this method. In some respects the latter cases are the more interesting, for in spite of the continuous taking of solvents, they were, up to the time of taking this dietary, frequently passing uric acid calculi. With the exception of a few small stones passed some time after the commencement of the treatment (in less than half the cases only), no further formation took place, although the use of all solvents was discontinued.

My experience of the so-called "Salisbury" dietary has led me to form the following conclusions, which I venture to submit for your consideration and criticism:—

(1) That a certain number of cases of chronic gouty arthritis, recurrent uric acid calculi and gouty dyspepsia, with fermentative changes, which have proved refractory to

ordinary methods of treatment and dietary may be treated by means of an exclusively red meat dietary, plus hot water drinking, with excellent results.

(2) That this method of treatment is irksome and trying, and as, unless it is carried out *strictly* in the first instance, it is apt to do harm, it should only be used in those cases where other methods have failed, or are thought likely to do so.

(3) That the cases require careful selection and close medical supervision; the details being modified according to the needs of each individual patient.

(4) That those who suffer from persistent albuminuria or organic heart disease are in most instances unfit for this treatment; when, however, it is prescribed for them its course should be watched daily.

(5) That certain cases of chronic gouty arthritis which fail to improve while on a mixed diet, recover equally well whether on this dietary or on the meat free dietary suggested by Dr. Alex. Haig.

(6) That it is of the utmost importance that no addition, *however small*, of carbo-hydrates, saccharine matters, or fruit be made to the dietary during the first few weeks of treatment; very slight acts of carelessness in this respect having often caused disappointment and failure.

(7) That used with due care and discretion this method is a most efficient and, sometimes, even a brilliant addition to our therapeutic resources.

Dr. Haig said he had known for many years that cases like those under consideration could be benefited by an absolute meat diet, and it had struck him as very extraordinary that a disease due to uric acid should improve under a diet in which the acid would be introduced. At first sight it seemed inexplicable, but he pointed out that many mineral waters, especially those containing sulphates and lime salts, were beneficial in the treatment of gouty arthritis, they acting in the same way as the meat diet. Patients thus treated remained well for some months, but the affection then recurred again and again. His own explanation of the action of the meat diet was that it acted as a stimulant and the first effect of every stimulant was to clear the blood of uric acid, thus lessening the tendency to irritation.* He repeated his assertion that it was possible to produce gouty arthritis in anyone experimentally, but it would not be possible to produce this experimental arthritis while administering drugs which tended to clear the blood of uric acid, unless there was plenty of uric acid in the blood at the time they were given. If there was but little

* 'British Medical Journal,' March, 1895.

uric acid in the blood the drugs would keep it clear and prevent rather than cause arthritis ; and a diet of meat acted in the same way, and it only relieved the arthritis while it acted as a stimulant, *i.e.*, while it kept the blood clear. He said he had seen the most lamentable results from the treatment during the past few years. The arthritis, it was true, had improved for a time, but later on the patient often got low and depressed and altogether miserable. In one case a lady who had been on the diet for three months fell into a comatose condition and remained insensible for 36 hours, so the treatment was abandoned. He had a patient at present under his care whose arthritis had resisted the treatment and he had become very depressed and anæmic under its use. If the meat diet failed to act as a stimulant the ultimate result of the treatment might be exceedingly dangerous, causing headache, epilepsy, mental depression, anæmia, or perhaps Bright's disease.

Dr. LUFF said he was not surprised that the author had obtained such good results. He saw nothing incompatible between the disease and the treatment. He did not for a moment wish to say that the influences exerted by animal or vegetable diets on gout were due merely to the action of their mineral constituents, but in working at the subject his attention had been drawn to the effect of the mineral constituents of animal and vegetable diets upon the rate of decomposition of the quadriurate and the solubility of the biurate. Although the mineral constituents of meat slightly diminished the solubility of the sodium biurate, yet they appeared to postpone the maturation of the quadriurate, so that a meat diet might be useful in a certain class of cases. He himself had had no experience of the exclusive use of meat diet in the treatment of gout, not having met with cases in which it appeared to be indicated. He took exception to one of the remarks of the previous speaker respecting the introduction of uric acid in meat ; he distinctly asserted that meat did not introduce any uric acid into the system, for the simple reason that there was no uric acid in meat nor in the blood. Following the work of Sir Alfred Garrod and others he had examined large quantities of blood from human beings, healthy mammals, and healthy birds, and he found that no uric acid was present in the blood of any of them ; in fact, uric acid was not a normal constituent of blood. It was present in the blood of gouty patients ; it was probably normally formed in and excreted by the kidneys, but in gout, owing to defective elimination by the kidneys, the uric acid was absorbed from those organs, giving rise to the characteristic manifestations. In addition to gout the other diseases in which uric acid was found in the blood were certain blood diseases—leucocythæmia for instance—where it was probably formed in the system consequent on the disintegration of the white corpuscles. He protested against its being said that an article of diet was the means of introducing uric acid into the system when it had never been shown to contain the acid. It was no good applying a certain silver-test process to a piece of meat.

Dr. HAIG asked permission to explain that he did not claim to have demonstrated the presence of uric acid in meat, but of bodies such as xanthin and similar bodies which he regarded as the equivalents of uric acid.

Dr. LUFF, continuing, said it was very misleading to speak of the introduction of uric acid when, after all, quite different bodies were really referred to, bodies with different reactions, bodies which were

not deposited in the joints, and which it had not been shown could easily be converted into uric acid.

Mr. Buckston Browne observed that there was no doubt that the Salisbury treatment might prove very successful for a time in the treatment of uric acid calculi, but patients could not go on with that treatment indefinitely. He declined to admit that it was the taking of meat and hot water that did the good in these cases. It was the avoidance of sugar, starch, and alcohol, and he was just as sure that he could cure uric acid calculi as Dr. Haig was that he could produce gouty arthritis by a special diet. It was absolutely possible to cure a person of uric acid calculi if one stopped his alcohol and reduced the starch to the minimum compatible with comfort, allowing him vegetables that grew above ground as well as potatoes and onions. He had had many cases of the sort and he recalled the case of a man who expressed his willingness to do anything to avoid the formation of calculi and for years he went on without any fresh ones forming. Then his lungs gave way and he went to winter on the Nile, where the cuisine was starchy and sweet, thereupon fresh stones formed, which had to be removed; but since that time, having returned to Lancashire and having resumed his diet, he had been quite free.

Dr. Thorowgood said he would have liked to hear something about the previous habits of life of the patients who had improved so much under the treatment. He referred to the case of a man who believed himself to be gouty, and had been taking large quantities of starchy foods till he had developed flatulent dyspepsia. On a meat diet with exclusion of alcohol, farinaceous and saccharine food, the patient had improved immensely. In a valetudinarian the avoidance of meat and a highly farinaceous dietary was very apt to cumulate in a condition of acid dyspepsia. He thought that the acidity of the stomach might give rise to the production of lithic acid in the stomach. Such cases were often much benefited by alkalies such as magnesia, which though they did not assist in the elimination of lithic acid, yet acted by correcting excessive acidity and allaying irritation of the coats of the stomach. Such cases would improve under an exclusively meat diet, but they could not continue this treatment for very long.

(*Discussion adjourned.*)

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*May* 10*th*, 1897.

## ADJOURNED DISCUSSION ON Mr. ARMSTRONG'S PAPER.

Dr. Garrod observed that he spoke somewhat at a disadvantage, as he had not had any experience of the method of treatment in the cases in which it had been tried by the author, although he knew something of it in other cases. Many patients with rheumatoid arthritis above the class of hospital cases, had at some period or another undergone the treatment, and he himself knew of a considerable number of patients who had done so. Many said it had not made any difference, while others affirmed

that it had done them much good. It seemed to him to be carrying to an extreme a very important line of treatment in rheumatoid arthritis, viz., the feeding up of the patients. He believed that much harm was done by reducing the diet of persons suffering from osteo-arthritis. In attempting to give an explanation of the results obtained by the author one was confronted, not by one but by several problems, and these would require not one but several explanations. He contended that for many years it had been the custom to treat the pathology of gout as much too simple a matter, and if one could say that this substance dissolved uric acid and this other did not, it had been thought that one could decide offhand whether a particular substance was good for gouty patients. He observed that there were very few of the recognised lines of treatment in gout which could be explained on scientific lines, and the action of some of the most potent remedies was a matter of which we knew little or nothing. Colchicum, for instance, the action of which in an acute attack of gout was incontestable, was a drug as to the precise mode of action of which nothing is known. No dissatisfaction need therefore be felt if they failed to explain the action of the particular treatment under discussion. He discussed the differences between the various classes of cases referred to in the paper, and remarked that a case of chronic articular gout was a very different thing from acute gouty arthritis. In the latter there was a deposit of urates in the joint with acute inflammation, though he believed that the latter is not always present. In the course of numerous *post-mortem* examinations on hospital patients he had examined the great toe joints in many instances in which there was reason to suspect renal disease, and although there might not have been any manifestation of true gout during life, yet there were often deposits in these situations. In a case of chronic articular gout, on the other hand, the joints that had been damaged not only showed uratic deposits in the tissues, but all the tissues and the nutrition of the joint had suffered, considerable changes having been produced in the joint presenting many resemblances to those met with in osteo-arthritis. One might, therefore, easily conceive that a mode of treatment which was bad from the point of view of uric acid might nevertheless prove beneficial in certain cases, that is to say, the same treatment which did good to the joints in osteo-arthritis might do good to joints which had suffered from the lesions of gout, joints which would not be materially benefited even if they could remove the whole of the urates from them. Then with regard to uric acid calculi, this, as Sir William Roberts had pointed out, was entirely a different problem from that of gout; here it was not the tendency to the deposit of sodium biurates in the tissues indeed, nor even an increased production of uric acid in the body which had to be considered, but the separation of the uric acid by the decomposition of the quadurates in solution, a process which was influenced by a variety of conditions, such as the amount of saline constituents and colouring matter in the urine, and the degree of acidity or alkalinity, all of which factors had a share in determining the decomposition of the quadurates. Part of the good results obtained by the author in cases of uric acid gravel was perhaps due to the influence of the treatment upon the saline constituents of the urine. He supposed that everyone would agree that this line of treatment was one which was likely to increase uric acid production, and it therefore appeared at first sight unsuitable for gouty patients. If the patients had a renal affection (and it was very difficult to be sure that gouty patients were free from such an affection, even when clinical

symptoms were absent) one would expect that the administration of a diet which was calculated to increase the uric acid formation would be decidedly detrimental. It seemed to him, therefore, that in spite of the good results which the author had obtained in some of his cases, the line of treatment, as the author himself had admitted, could only have a very limited field of application. It was one, moreover, which could not be employed at random or except under close medical supervision. In cases of gouty dyspepsia with inability to digest carbohydrates, it seemed possible that the treatment did good by resting the organs, the functions of which were disordered, and a revolution of diet of this kind, which must cause a profound change in the metabolism of the body, might act as a kind of shock, and the patient would, so to speak, start afresh when the ordinary diet was resumed.

Dr. LUFF said it was not at all surprising that in carefully selected cases, especially in those free from obvious kidney mischief, the author should have obtained good results. He had pointed out in his Goulstonian Lectures that there was absolutely no difference between animal and vegetable proteids in respect of chemical metabolism, and consequently that meat was not more likely to produce uric acid than a corresponding amount of vegetable proteid. He suggested that in all probability much depended on the saline constituents of the two kinds of diet. The strong objection to the employment of meat in connection with gout arose, he thought, from an error, viz., the idea that meats either formed an excessive amount of uric acid—which had never been shown to be the case—or that it was the means of introducing ready-made uric acid into the system, another point which had never been conclusively demonstrated. His own view was that in healthy persons uric acid was only formed in the kidneys, probably from urea and glycosine. When there was either functional or organic kidney derangement uric acid might be absorbed from the kidneys into the general circulation, and that, he believed, was the only way in which it got into the system, except in certain blood diseases. There was consequently no reason why animal proteid should produce more uric acid than vegetable proteid. He did not believe that uric acid was introduced directly in meat. At the previous discussion he had been met with the reply that it was not uric acid that was introduced but xanthin. With all respect for Dr. Haig's laborious work, he would point out that it was currently believed that Dr. Haig's view was that uric acid was directly introduced in this way. In a paper published at the end of 1894 Dr. Haig stated :—"It follows, from my previous reasoning, that all the uric acid contained in the foods ingested did find its way as uric acid into the body and blood, that is, was introduced," and he proceeds to mention the quantities of uric acid which a man may introduce into his system with an ordinary dinner. Subject to correction, and as far as he himself had been able to ascertain, Dr. Haig's estimation of uric acid depended entirely upon Haycraft's method. Dr. Haig had admitted that he did not find uric acid but xanthin, but this body he could not have estimated by Haycraft's method, because the compound of xanthin with silver was insoluble in nitric acid. In a paper in the 'British Medical Journal' for 1891, Dr. Haig had referred to the fact that the xanthin and silver compound was not soluble in nitric acid; one was therefore driven to the conclusion that the body which he stated was not uric acid but xanthin, could not be xanthin because that could not be estimated by the method employed. He thought that the distrust of a meat diet for

the gouty was based on the misapprehension that such a diet directly introduced uric acid into the system, but he maintained that there was no proof that either uric acid or even xanthin was thus introduced. He agreed with Dr. Garrod that an exclusive meat diet for the gouty might be dangerous if any kidney mischief were present, and it was difficult to be sure that it was absent.

Mr. P. J. Freyer referred to Dr. Haig's contention that there was no such thing as the uric acid diathesis and to his method of treatment by a vegetable diet, and asked if he would explain the fact that the inhabitants of the north-west provinces of India and the Punjab, the vast majority of whom all their lives had lived on this very diet, suffered extensively from stone, gout, and rheumatism. Dr. Haig had never satisfactorily replied to this question, but had said that there was less liability to stone and gouty disease among people who lived on rice than among those who lived on wheat—another element of his vegetarian diet. Dr. Haig, of course, rightly held to the statements of which he in his own mind was convinced and held to them strongly. The one argument that had struck him most in Dr. Haig's contention was that he suggested that all cases of gout which resisted ordinary treatment should make a trial of his method and Mr. Buckston Browne had followed on the same lines. He suggested that the patient might eat, drink, and be merry ; and urged that it was absurd that they should force themselves against the great powers of Nature which had operated in the selection of their food for ages. If stone formed in the kidney it could now be readily removed, and even stone in the bladder offered no insuperable obstacle to the surgeon.

Dr. Maguire urged that this was not a question of chemistry or of diet or of microbes or of starch or even of uric acid at all. He pointed out that serpents, which lived on animal food, excreted solid uric acid or its salts, while birds, which lived almost entirely on vegetables, also secreted almost solid uric acid salts ; and as one mounted the scale through various degrees, one came to the Englishman, a being endowed with the greatest vitality, who excreted a urine containing urea and uric acid, but in solution. When his vitality diminished, then the changes under discussion came to pass. We had, in fact, a normal process of evolution from the serpent and the bird to the highest man, and the changes mentioned indicated an abnormal devolution from man to serpent, or in that direction. Dr. Maguire said that this, the converse of evolution, was an important generalisation and of wide application. The Hindoo was a being at all times of very feeble vitality, and so, even with a vegetable diet, he deposited uric acid. This held good in respect of all diseases as well as gout. He (Dr. Maguire) admitted that in certain cases the method of treatment described by the author did do good, because it tended to restore the vitality of the patient. It did not matter what he suffered from, but if they could get him into better health he would be less ill. The treatment did good for the time being, the digestion was facilitated, and the hot water tended to rid the system of the excess entailed by such a diet. He pointed out, however, that a diet which might suit a particular patient to-day and even to-morrow, on the third day might become intolerable. He therefore agreed with Mr. Freyer that it was best to let the patient eat, drink, and, if possible, be merry. He did not think it was necessary to exclude the cases of chronic gout, albuminuria, and heart disease from this treatment, though they would, of course, require special supervision. He insisted particularly on the necessity of not prolonging unduly the treatment, a return to ordinary

diet after a time being imperative, so that, again, the vitality of the patient, the real essence of the condition, might not be sapped.

Mr. ARMSTRONG, in reply, said that before criticising Dr. Haig's remarks he would say that in many cases his diet had done good for a time. He, however, joined issue with Dr. Haig in respect of his views on a red-meat dietary. Dr. Haig had said that the red meat merely acted as a stimulant, clearing the blood of uric acid and depositing it in the joints, so that the last state of the patient was worse than the first. His own experience however had been that, instead of getting worse, the joints had got better, and he asked where Dr. Haig supposed the uric acid had gone to. Dr. Haig had sought to explain the action of certain mineral waters in the same way, but personally he had always regarded their action as eliminatory. He admitted that he failed to see any sort of analogy between the two. Dr. Haig, moreover, has said that it was far too soon to judge of the results of the treatment, but he would point out that some of the cases had been seven, five, and four years under observation, and this, he maintained, was ample time to form an opinion. He admitted that the patient under this treatment required careful supervision, and he instanced the case of the patient of a friend who was obviously being poisoned by the waste products, but that was a case in which the treatment was not appropriate. He referred to a patient of his own who had been taking Dr. Haig's dietary for over six months, yet whenever this patient was worried or upset or was reduced in health she at once began to excrete large quantities of uric acid. With reference to Dr. Luff's remarks in respect of the formation of uric acid in the kidney, he suggested that certain fermentations went on in the system which provided the products out of which uric acid was formed in its turn. Mr. Buckston Browne was his strongest supporter, for he claimed to be able to cure uric acid calculi by withdrawing sugar, starch, and alcohol. That left the patient little beyond meat for his diet. In answer to Dr. Thorowgood, he said that his patient had been stated to be suffering from amylaceous dyspepsia with much acidity and flatulence. He regretted that he had not made it sufficiently clear that it was only proposed to subject patients to this diet for a limited space of time—from four to eight or at most 10 weeks, after which they returned to their ordinary diet. He agreed with Dr. Maguire that it was, after all, largely a question of vitality. He thought that the causation of gout ought to be put down to the nervous system, which reacted on the chemical processes of the body. He admitted that probably not more than 3 per cent. of cases were suited for this treatment.

# THE REMOVAL OF HIGH-LYING CANCER OF THE RECTUM BY KRASKE'S METHOD, WITH A SERIES OF FOURTEEN CASES.

By F. Swinford Edwards, F.R.C.S.

Two or three considerations have induced me to bring this subject forward. In the first place, I cannot find that any like series of cases of sacro-coccygeal excision of the rectum has been recorded by an English surgeon. Further, the relative merits of extirpation *versus* colotomy for the treatment of high-lying rectal carcinoma seem to me to need further discussion, for, contrary to my own feelings in the matter, surgical opinion in this country, if judged by the remarks of Mr. Watson Cheyne on this subject in his recent Lettsomian Lectures, seems somewhat unduly to favour the latter, which at best is only a palliative procedure. I think that all will be agreed that in cases where we feel morally certain that the entire disease can be removed, even at some considerable risk to life, the patient should be submitted to the radical operation which holds out a prospect of getting permanently rid of the disease in some cases, whilst in others recurrence may be delayed for some years. Even if the disease manifests itself again after the lapse of only a few months and further excision is not thought advisable, one can always fall back on a colotomy.

I know of three or four cases in my own practice submitted to excision, and now well and engaged in their various occupations without any sign of recurrence after periods varying from one and a half to six years, who had been advised by hospital surgeons of repute that the disease did not admit of removal, and that colotomy was the only thing left for them. I mention this merely to show that surgical opinion has not yet grasped the fact that these cases of high-lying cancer are as capable of removal as those situated lower down.

Let me here ask: What were the conditions presented by these cases which possibly influenced these various surgeons in advising a colotomy? I think it must have been the height to which the growth reached above the anus, for in all it extended to at least 4 inches above the sphincter; in none were there any enlarged glands to be felt, nor had the disease extended beyond the rectal

*Mr. Swinford Edwards's Cases of*

| No. | Date. | Name and Sex. | Age. | Where or with Whom Seen. | Duration of Symptoms in Months. |
|---|---|---|---|---|---|
| 1 | February, 1891 ... | J. H., male ... | 61 | St. Mark's Hospital ... | 12 |
| 2 | December, 1892 ... | E. M., female... | 50 | West London Hospital | — |
| 3 | February, 1893 ... | F. T., male ... | 53 | St. Mark's Hospital ... | — |
| 4 | August, 1894 ... | Mrs. B.... ... | 50 | West London Hospital | — |
| 5 | September, 1894 ... | Mrs. P.... ... | 50 | Dr. Greenway ... ... | |
| 6 | July, 1895 ... ... | Mr. S. ... ... | 52 | Dr. Bontor ... .. | 1½ |
| 7 | August, 1895 ... | Mr. O. ... ... | 50 | Dr. Strover ... ... | 6 |
| 8 | September, 1895 ... | H. H., male ... | 62 | West London Hospital | 10 |
| 9 | April, 1896 ... ... | E. W., female... | 48 | St. Mark's Hospital .. | 9 |
| 10 | April, 1896 ... ... | E. H., female ... | 42 | West London Hospital | Recurrence after perineal excision two years previously. |
| 11 | May, 1896 ... ... | J. G., male ... | 63 | ,, ,, | 12 |
| 12 | September, 1896 ... | W. R., male .. | 55 | ,, ,, | 4 |
| 13 | October, 1896 ... | A. T., female ... | 64 | St. Mark's Hospital .. | 24 |
| 14 | February, 1897 ... | M. S., female ... | 60 | West London Hospital | 9 |

walls. Moreover, it has been until recently an accepted doctrine that when the upper limit of a cancer extends beyond the reach of the finger in the rectum the case is one unfit for excision. Personally I am of opinion that the position of the growth forms, *per se*, no bar to its removal. According to the height to which the growth extends so must we plan our operation. For anal carcinoma the old perineal operation suffices. Where the disease

*Kraske's Excision of the Rectum.*

| Extent of Disease. | Operation. | | | Result. | Subsequent Condition. |
|---|---|---|---|---|---|
| | Bone removed. | Peritoneum opened. | Rectorrhaphy. | | |
| Extended up for 4 inches round entire circumference. | Coccyx | No | No | Good | Seen five years afterwards in good health, no recurrence. |
| Extensive annular growth. Glands involved. | ,, | ,, | ,, | ,, | Recurrence after one year. |
| Four inches of rectum involved. | ,, | Yes | ,, | Death | From peritonitis. |
| Annular growth upper limit mid-sacral region. | Sacrum and Coccyx | ,, | Yes | Good | Rectorrhaphy failed, no recurrence to date. |
| Growth equal in size to a 5*s.* piece limited to dorsum. | Coccyx | No | No | ,, | No recurrence. |
| Size of a 4*s.* piece on right side from 2 inches above anus to sacrum. | ,, | ,, | ,, | Recurrence | Further excision, subsequent colotomy. |
| Anterior two-thirds of rectum affected, extends from $2\frac{1}{2}$ to $4\frac{1}{2}$ inches above anus. | ,, | Yes | ,, | Good | Neuralgia, prolapse, no recurrence. |
| Five inches of rectum removed. | Sacrum and Coccyx | ,, | No | ,, | The growth was scirrhus; not seen him since. |
| Limited to dorsum. Extends from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches up. | Coccyx | No | ,, | ,, | Gets about comfortably with a truss. |
| Growth reached to sacro-coccygeal level. | Sacrum and Coccyx | Yes | ,, | ,, | Seen recently—is comfortable, no stricture nor prolapse. |
| Extensive growth, anus involved. | Coccyx | No | ,, | ,, | Seen quite recently; slight tendency to contraction. |
| Growth extended to 3 inches above anus. | Sacrum and Coccyx | Yes | Yes | ,, | Is quite well with normal anus. |
| Growth encircles gut and extends as high as the mid-sacrum. Enlarged sacral gland. | ,, | ,, | No | Death | Was the subject of chronic bronchitis and a dilated heart; died on the fourth day, of exhaustion. |
| Complete ring 2 inches in depth, commencing 2 inches above anus. | ,, | ,, | Partial | Good | Still in hospital, but doing well. Skin wound gaped, and there has been some slight sacral necrosis. |

extends to the level of the sacro-coccygeal articulation behind, probably a coccygeal excision will suffice, or if more room is required the sacro-sciatic ligaments may be divided. For cases extending up still further, even as far as the pelvic brim, the removal of the lower portion of the sacrum or Kraske's operation must be undertaken.

Sacro-coccygeal excision not only lets plenty of daylight into

the bottom of the wound, greatly facilitating accurate suture of the peritoneum, but enables us, in fit cases, to restore the continuity of the gut after the removal of the diseased portion.

That which really militates against the success of any rectal excision is the fact of lymphatic infection, or of the extension of the disease beyond the rectal walls, when the growth, instead of being movable with the rectum on its bed of adipose and areolar tissue, is bound down and fixed to the neighbouring parts. Where these factors are present attempts at extirpation can only end in disaster. Another bar to operative interference is, according to Mr. Cheyne, a rapidly-growing carcinoma, and in this I agree; but can we always tell from symptoms whether such is the case or not? For symptoms such as bleeding, tenesmus, pain and straining at stool, with a feeling of incomplete evacuation, often only come on when the disease must have existed for some time. If the surgeon now examines for the first time and finds that the cancer admits of removal, he is not likely to wait and test the rapidity of growth, nor do I think he would be justified in so doing, as delay in these cases may be of vital importance to the life of the patient. As an instance of a rapidly-growing carcinoma, let me relate briefly the following case:—

M. S. (No. 6 in the table) was sent to me by Dr. Bontor, of Great Berkhamsted, in the beginning of July, 1895. As I was away from town my friend and colleague, Mr. Alfred Cooper, was good enough to see him for me, when he found a small carcinomatous patch of about the size of a florin situated about 3 inches above the anus. This patient I saw about a fortnight subsequently, when the growth had doubled itself in size, and it was with difficulty that I was able to reach above it. The increase in growth was confirmed by Dr. Bontor. I performed coccygeal excision, which was unusually difficult as the patient was a very stout and big man, the rectum being at a great depth from the surface. Recurrence took place in four months, and a further excision was done, but I was not satisfied that the removal had been sufficiently free. As the disease, after a further period of six months, again became manifest, colotomy was performed just ten months after the first excision.

Now, some might say here was evidently a case of rapid growth, and therefore one not fitted for extirpation. Would it not have been better to have colotomised the patient in the first instance? The answer is: No doubt it would have been better for the reputation of the operation, but I am not at all sure that by following the course I did 10 months have not been added to a valuable life.

### Preliminary Colotomy.

As to the advisability of a preliminary colotomy, for the purpose of diverting the bowel contents from the field of operation, and thus preventing fæcal extravasation into the peritoneal cavity, this was a course which I, and possibly others, recommended before I had tried or even heard of Kraske's operation, and I still think it has much to recommend it as a preliminary to perineal excision. When, however, we adopt the sacral route I look upon it as quite unnecessary, and that on the following grounds:—

1. Any wound of the serous membrane can be seen and accurately closed, thus avoiding fouling of the peritoneum.

2. The loss of two or three weeks a previous colotomy entails may make all the difference between success and failure after excision.

3. It is not so likely to be followed by stricture as after the perineal operation, and therefore no subsequent colotomy is necessary; were it otherwise I should be inclined to regard it as an argument in favour of a previous colotomy.

4. A colotomy may seriously interfere with or altogether prevent a rectorrhaphy by making it difficult or impossible to bring down the upper rectum by reason of the adhesions between the sigmoid colon and abdominal wall.

5. If not absolutely necessary, it is hard lines to saddle a patient with an abdominal artificial anus and to subject him to the risk —small as it is—of this extra operation. It might be said: "What does it matter where the artificial anus is placed? If a colotomy is performed the patient will be saved an anus in the sacral region!"

This, however, does not necessarily follow, as the end and aim of Kraske's operation is to restore the continuity of the bowel with use of the normal anus. Even where this cannot be carried out, patients seem to me to prefer the artificial anus to be placed somewhere between the folds of the buttocks, in the neighbourhood of the original outlet. It must also be borne in mind that a previous colotomy is not an unfailing safeguard against peritonitis following injury to the serous membrane during the course of an excision, as I know to my cost; for Case 3 succumbed to peritonitis on the ninth day after an excision, although he had previously been subjected to colotomy.

## The Operation.

Since the distinguished author of this operation introduced it to the profession many modifications have both been suggested and practised by such men as Bardenheuer, Heinecke, Bardeleben, Volkmann, Rose, and Roux, many of these with a view to restoring the osseous structures by a temporary resection. One very successful case of this is recorded by Mr. H. Littlewood* amongst eight cases of rectal excision, three of them being sacro-coccygeal. As yet I have made no attempt to replace the bone—indeed, I should say that it is quite unnecessary in the majority of cases; but in those in which a complete rectorrhaphy is intended it should certainly be attempted.

It is important, in preparing a patient for the operation, to get the general health into as good a state as possible, and to clear out the bowels for some days before with aperients and enemata. As a first step in the operation I have made it a practice to wash out the rectum thoroughly with some antiseptic—sublimate solution, 1 in 2,000, for choice.

With regard to posture, I have generally used the latero-abdominal with the thighs well flexed; and in two or three of my earlier cases I substituted the lithotomy position to facilitate the dissection of the rectum from the prostate and base of the bladder. Littlewood's modification of Godlee's position has much to recommend it. He places the patient in the position used for dissecting the buttocks, raising the pelvis on a block, and having both knees flexed and resting or kneeling on a chair. I adopted this in my last two cases, and was much pleased with the good view it gave. Its drawback is that it is more difficult to keep blankets on the thighs and to protect them from getting soiled, as mackintosh sheeting is very apt to slip down. It is not my intention to enumerate all the steps of the operation, but merely to touch upon those points as to which a difference of opinion exists, or further comment seems to me advisable.

After a central longitudinal incision about 6 inches in length through the soft parts down to the bone, it may be found that plenty of room is obtained by simply removing the coccyx. In Case 6, although the upper limit of the growth was on a level with the middle of the sacrum, removal of the coccyx gave ample

* 'Lancet,' September 12th, 1896.

room. If more is necessary, division of the sacro-sciatic ligaments on the left side may suffice. I have cut through the sacrum both transversely and obliquely, that is, by either Bardenheuer or Kraske's incisions as high as the third posterior sacral foramen. Whether more of the bone can safely be removed is a question, though Volkmann and Rose appear to have divided the sacrum transversely as high as the second foramen. For the purpose of effecting the division, some use a saw; I find, however, that a chisel is much easier to work with, and more expeditious. To avoid wounding the soft parts under the bone, it is well to separate them with a periosteal elevator from the anterior surface of both sacrum and coccyx.

If any considerable bleeding takes place during the operation, it is here that we may expect it owing to wound of the middle sacral vessels. After their division they may retract and be difficult to seize, being concealed by the sacrum or what remains of it. Here it is that a good assistant is very necessary. In most of my cases I have been fortunate in having had the services of my friend and colleague Mr. Bidwell, and probably it is largely owing to his aid that I am able to report so well of the operation.

The bowel has now to be separated, in doing which it is as well after division of the levatores ani to keep to that plane of recto-vesical fascia which surrounds the gut, and not to attempt to dissect the bowel out of its bed of perirectal fat; by thus doing much bleeding is avoided and time saved. Separation of the posterior and lateral walls having been effected chiefly with the aid of the finger, it remains to deal with the anterior. I prefer now to clamp the gut well above the growth and to cut it through, in doing which the peritoneum is generally opened, when a sponge or gauze plug may be inserted temporarily and the dissection proceeded with from above downwards.

On reference to the table of cases it will be seen that I have several times in coccygeal excision avoided wounding the peritoneum; but I am not at all sure that one does not lose more than one gains by so doing—that is, if a junction of bowel is contemplated, for unless the serous cavity is freely opened it is often impossible to bring down the proximal end. As an instance of this, in Case 14 only a small wound of the peritoneum was inflicted, and although I had been able to leave at least 2 inches

of the anus and distal end, I found it impossible to approximate the ends in their entire circumference.

The question of deliberately and freely incising the peritoneum and subperitoneal tissue with a view to rectorrhaphy seems to me well worthy of consideration. Personally I am inclined to think that (speaking only of cases suitable for rectal anastomosis) where one can avoid opening the peritoneum one should do so, even if it entails abandoning the rectorrhaphy; but where the peritoneum is wounded and the gut cannot be brought down without a freer division, such a course is justifiable in view of the end to be obtained.

The affected portion of the rectum having been removed and any wound of the peritoneum carefully closed with a continuous suture, one is now able to determine the feasibility of intestinal anastomosis. If there is a sufficient length of the lower end saved and too much tension is not caused by approximating the parts it should certainly be attempted, for even if not successful in the entire circumference a great deal is gained by union of the anterior part. As to the best means of effecting this I do not know that there is much to choose between a bone bobbin or direct suture. Murphy's button I have tried, but do not think it suitable to this part of the intestinal canal, and that on account of the absence of a peritoneal coat to the lower portion, so that there can be no union of serous surfaces. Maunsell's method is of course out of the question. In cases where we can be tolerably certain of performing a satisfactory circular rectorrhaphy it would be well to leave the coccyx and segment of sacrum attached by one or other border; in other words, to form a bone flap, as in the method of Roux, so that after the intestinal suture the parts may be replaced before finally suturing the skin. If the position of the growth necessitates the removal of the anus it is of course useless to attempt to close the wound excepting in its upper part over the exposed sacrum. A few sutures should fix the end of the gut to the skin margin below the sacrum, or if thought better a ligature may be passed round the bowel to occlude it, fastened to the wound and allowed to slough off, by which means the wound is kept free from fæces for some days. If rectorrhaphy has been done the wound should be well flushed with sublimate, and a little iodoform dusted in, especially about the intestinal junction before closing it. The insertion of one or two drainage tubes is of

advantage. When the wound is left open a firm packing of either bicyanide or iodoform gauze forms the best dressing. This operation is naturally often followed by considerable shock, for which stimulants, a warm bed, assiduous nursing, and possibly strychnine will be required. As yet I have not had to transfuse, but it might be necessary.

### After-Treatment.

With regard to after-treatment, there is nothing special to be said, that is, speaking of simple excision cases, I do not trouble about the bowels, if they remain quiet for a week so much the better, but as a rule a motion is passed before this, in spite, perhaps, of opium which has been given to relieve pain. Most patients begin to get up and about after a month, and at the end of two are practically well. Some form of truss may have to be worn where there is either prolapse or incontinence, the latter being not infrequent where rectorrhaphy has not been successfully carried out.

I will now refer briefly to the cases, premising only that in every case the growth removed was submitted to microscopical examination which invariably confirmed the diagnosis of carcinoma.

Case 1.—In this case an iliac colotomy was done a fortnight before the excision. A full report of it is given in my joint work with Mr. Cooper on 'Diseases of the Rectum.' I last saw the patient in May, 1896, that is, five years after the operation, when there was no recurrence, and the bowels were acting well through the artificial anus.

Case 2.—In this case, which was referred to me by my colleague, Mr. Heycock, after removal of the growth, it was found that several sacral glands were enlarged. These were also excised. There was recurrence after one year, of which she died without further operation.

Case 3.—A case sent by my friend Dr. Simpson, of Rugby. Here again I performed a preliminary colotomy, which gave him so much relief that I hesitated to undertake the removal of the growth, which from its extent I knew would be a formidable matter. But the patient was most anxious to be rid of his cancer, and in spite of my putting the risks of the operation clearly before him, urged me to operate. He died of peritonitis on the ninth day, and at the necropsy it was found that the peritoneum had been wounded, although but slightly, a fact which I much regret was not discovered at the time of the operation. This, the only death in my first 12 cases, was distinctly due to want of care in looking for any possible rent in the serous membrane. In those days, perhaps, one did not so fully recognise the importance of accurate closure

of the peritoneum, for I had seen more than one case of perineal excision where the small intestine had actually protruded do perfectly well after packing the wound with sponges freely sprinkled with iodoform.

Case 4.—I showed this patient at a meeting of the Medical Society in February, 1895, and her case will be found at length in the 18th volume of the Society's 'Transactions.' I have seen her from time to time since then; she is in every respect flourishing, of a cheerful countenance and increasing in weight. In this case I attempted a rectorrhaphy by means of a Murphy's button. The anterior wall only united, and as the anal portion merely formed a sort of *cul-de-sac* for the collection of fæces, I prolonged the original dorsal wound through the anus, laying it freely open. This was the first case in which the position of the neoplasm necessitated the removal of part of the sacrum.

Case 5.—I saw this patient with Dr. Greenway, of Belvedere. Rectal symptoms had been present for about five months, but they were so slight that she could not believe there was any serious mischief. The growth, of the size of a five-shilling piece, was situated in the lower sacral region, and it was difficult without an anæsthetic to reach above it. It was limited to the dorsal half of the gut, and was, therefore, most suitable for excision. As this lady had consulted several other men, one of whom advised a colotomy, another that nothing should be done, at my suggestion she saw Mr. Cripps, who fully agreed with me as to the practicability of excision, after he had examined her under ether. I was able to leave the anterior wall untouched, and, therefore, did not expose the peritoneum. She made a capital recovery, and I have seen her three or four times since. There is no recurrence, but she is obliged to wear a pad of cotton wool and a T-bandage, and to carefully regulate the action of the bowels.

Case 6 has already been referred to. I have quite recently heard from Dr. Bontor that the colotomy is in every way satisfactory. The growth, however, is increasing and protrudes through the anus.

Case 7.—I saw this case with his medical man, Dr. Strover, of Hoxton. The growth, which had troubled him for six months, involved the anterior two-thirds of the rectum; it commenced $2\frac{1}{2}$ inches above the anus, and extended as high as $4\frac{1}{2}$ inches. He had consulted a surgeon, who advised colotomy. Coccygeal excision was performed. The peritoneum was opened and carefully closed. Intestinal anastomosis was not attempted. The patient made a rapid recovery, and has put on weight. He is now troubled with prolapse, for which he wears a truss, which answers well; but what affects him more is a severe form of neuralgia in the cicatrix of what was a very large wound. This comes and goes at varying intervals, though of late the attacks have been getting more frequent. It is now over a year and a half since the operation, and there is no recurrence.

The next case is of peculiar interest, from the fact of the growth having been pronounced by Dr. Abraham, who cut sections of it, to be scirrhus. Mr. Harrison Cripps has shown that the usual form of rectal cancer is adenoma or columnar-celled epithelioma, and this is my experience; for although I

have met with more than one case of sarcoma, I have never before seen a case of scirrhus of the rectum. I can only find one case recorded—namely, by W. E. Bessey, in the 'Journal of Orificial Surgery,' Chicago, vol. iv, p. 445.

Case 8.—This patient, 10 months previously, had first noticed bleeding at stool, soon followed by alternating constipation and diarrhœa; has generally to strain a good deal to pass anything; has been treated for urethral stricture, but never had syphilis. On examination, the rectum was strictured about 2 inches up, the mucous membrane was smooth and not ulcerated; the stricture was about 2 inches in width, and easily dilatable to the finger, which felt a cushiony induration surrounding the rectum. It seemed as though the submucous and muscular coats only were involved. The diagnosis appearing to rest between sarcoma and gumma, he was given a mixture of mercury and iodide of potash, while the stricture was dilated daily with bougies Nos. 7 and 8, lubricated with mercurial ointment. As after a fortnight matters were *in statu quo*, I did a posterior proctotomy, removing a section for examination. It cut very much as does a scirrhus of the breast, and presented a yellowish-white surface. On the day following the receipt of the microscopical report a sarco-coccygeal excision was performed, my colleague, Mr. Cheatle, assisting me. A piece of the rectum 5 inches in length was removed, and the peritoneum was freely opened. In consequence of the previous proctotomy no rectorrhaphy was attempted. Collapse was marked after the operation, but with free stimulation and frequent feeding the patient rallied and was doing well in 48 hours. The large wound granulated well, and he was discharged two months after the excision. His temperature only once reached 101°, and was practically normal for the last month of his stay in hospital. I regret that I have lost sight of him, as he has changed his address. On leaving he had no difficulty in defæcation. There was neither prolapse nor sign of stricture.

Case 9.—This case calls for no particular comment, excepting that the patient was an emaciated and very delicate-looking woman, and I feared she might not have strength to pull up after the operation, but in this I was happily mistaken. I have seen her recently; she is much improved in appearance, and, with care in the matter of regulating the bowels, she is able to get about with comfort and attend to her household duties; there is no sign of recurrence.

Case 10.—I had performed a perineal excision two years previously for malignant adenoma, and recurrence had taken place. There was a nodule of the size of a walnut in the recto-vaginal septum which involved Douglas's pouch. A sacro-coccygeal excision was performed with some increase of difficulty owing to a matting of the parts following the first excision. The case did uninterruptedly well, and shows no sign of recurrence up to date.

Case 11.—Coccygeal excision for a cauliflower-like growth which involved and protruded through the anus. The peritoneum escaped injury, but there was free bleeding from the veins about the prostate, where the growth was somewhat adherent. The patient made a very rapid recovery, and left the hospital within the month. He has now a

good anus which comfortably admits the index finger. There is no recurrence.

Case 12.—This has, so far, been my most successful case, for, after a sacro-coccygeal excision, I was able to do a complete circular rectorrhaphy, and when last I saw the patient, six weeks ago, the wound had healed with the exception of a small dorsal fistula which was weekly getting smaller, and did not in the least inconvenience the patient. The act of defæcation took place through the normal anus, and was unaccompanied with discomfort. Examination *per rectum* shows a slight linear constriction at site of suture, that is, at about 2 inches above anus. As I was unsuccessful in Case 4 with Murphy's button, I tried direct suturing without any mechanical contrivance, and the result has undoubtedly been good.

Case 13.—This case was sent to me by Dr. Wright, of Rochester. The patient had been troubled with bleeding for two years, though it was only during the past year that pain was complained of. The growth was extensive, and there was one enlarged sacral gland, for so a nodule felt at the examination proved to be. Assisted by my colleague, Mr. Wallis, I did a sacro-coccygeal excision, adopting Littlewood's genu-pectoral position, which much facilitated the operation, nor did this posture in any way interfere with the administration of ether, so Mr. Lloyd, our chloroformist, informed me. I removed several enlarged glands, but was unfortunately obliged to leave an indurated chain of lymphatics running up above the pelvic brim. There was considerable collapse after the operation, from which the patient partially rallied. However, death occurred on the fourth day of exhaustion and cardiac dilatation. It is evident that this was a case unfitted for operation, taking into consideration the possible involvement of glands, and the history of chronic heart and lung mischief. The fact is, on the one hand I was deceived by her appearance of health, and on the other, I hoped that the nodule referred to would prove to be part of the growth and not lymphatic.

Case 14 is the case of a wiry female, aged 60, who had presented symptoms for nine months. On examination I found a complete ring of carcinoma 2 inches in depth, its lower margin being 2 inches above the anus. I adopted the same position as in the last case, and was again well satisfied with it. In order to get well above the growth I had to remove rather more of the sacrum than usual by means of a second resection, but I am unable to say the exact height to which I went. About 3 inches of the mid-rectum were removed. As the peritoneum was not freely opened I was not able, without undue tension, to effect a complete rectorrhaphy, but contented myself with suture of the anterior half, which has united well. The upper part of the skin incision which had been sutured broke down, leaving the sacrum exposed covered with granulations. As this condition still persisted six weeks after the operation, under ether I freed and pared the skin flaps, scraped the granulations, found and removed two small sequestra which had evidently prevented healing, and resutured the wound. This patient is now about to leave the hospital. Her bowels act well, and there is neither prolapse nor stricture.

A summary of the above shows that out of 14 cases there were two deaths—that is, a mortality of a little over 14 per cent.; two

recurrences—one in two years and one in four months; 10 living and well, of these one is in good health after five years, two in good health after nearly three years, one after one year and nine months, three after one year, one after six months, and one after three months; one case has not been seen since leaving the hospital.

E. H. Taylor, of Dublin, in an excellent article in the 'Annals of Surgery' for April of this year, states that the mortality of this operation is from 20 to 25 per cent., whilst Cheyne, in his lectures already referred to, estimates it at from 18 to 20 per cent. He says:—"The mortality varies considerably between the perineal and sacral operations, being naturally higher for the latter." In this I must agree with him, for out of many cases of perineal excision I have not had a death. He further says that König's total mortality is 38 per cent., Billroth's 34, Kocher's 28, Albert's 18; Iversen's estimate of Kraske's operation 25 per cent., and Czerny's 19·4 per cent. I have not been able to find any statistics regarding the work of British surgeons. Ball, in the second edition of his work, states that he has had four cases, which were all cured, and Littlewood's three cases I have already mentioned. Allingham, in his last edition, says he has performed the operation several times, but with what result is not stated, whilst I can find nothing on this subject from the pen of Harrison Cripps, a pioneer in the perineal operation.

In conclusion, I would remark that, owing to the enterprise of our Continental brethren, the field of operable cases of rectal cancer has been very considerably widened. Many patients, on whom even the most heroic would have refused to operate by the perineal route, can by Kraske's operation at least be relieved of their disease, and in a few of these the normal functions of the part may even be restored. The mortality, high as it is on the Continent, is decreasing, whilst in Great Britain, as far as I can learn, it is not more than twice that of the perineal operation; so that with extended experience, a more careful selection of cases, and strict attention to antiseptics, we may confidently expect it to become yet lower.

Dr. Herbert Snow questioned whether the disease in one of the cases related was really scirrhus, essentially a mammary lesion, histologically imitating the mammary acini in structure; whereas rectal cancer similarly resembled the tissue whence it arose, viz., Lieberkühn's follicles

Secondary deposit in the liver, *per* the superior hæmorrhoidal vein, was specially common in rectal malignancy. Did Mr. Edwards make a point of examining the liver with this contingency in view, and would he operate should it have taken place? He understood Mr. Edwards to condemn all operative procedures whenever the growth was fixed, and emphatically concurred in that view, as no amount of bone-removal would then effect eradication, and the last state of the patient, even under the most favourable conditions, was far worse than the first. It was necessary to lay stress on this point, as there had been many reports of such cases operated on, often with deplorable immediate result, in the medical journals. Then, in examples of disease high up the rectum, yet mobile, came the question whether these could not be excised, and satisfactorily excised, without interference with the bony structures—a proceeding, in less able hands than those of Mr. Edwards, fraught with the greatest danger. He thought they could, and instanced a man operated on by himself in May, 1896, who had rectal carcinoma of at least four to five years' standing, and who stated that he had been refused operation, as in too advanced a state, at St. Mark's Hospital a year previously, by a colleague of Mr. Edwards. The lower margin could barely be touched with the forefinger; yet, on the ground of its mobility, Dr. Snow decided to attempt removal. Cutting down upon the growth with gentle traction, he incised it longitudinally, and then, passing the left forefinger within the lumen of the bowel, he was able to hook down the infiltrated part, and divide the healthy tissue above upon the finger-tip as a guide. The man had done well, and so far had remained free from recurrence. Dr. Snow thought that, so long as there was mobility, cases of very high rectal cancer could be safely removed by this little manœuvre, without any division of the bones. He sincerely congratulated the author, however, upon his valuable and brilliant results in a field of surgery hitherto little trodden in England.

Mr. Bidwell observed that the high mortality of foreign statistics in respect of this operation, as compared with the author's results, might be explained by the fact that abroad the surgeons nearly always performed rectorrhaphy, leading to many deaths from sepsis. Considering the freedom from recurrence in cases of excision of cancer of the rectum, he urged that even a severe operation was justifiable in such cases; and even if the mortality exceeded 20 per cent., the patient would probably often elect to submit to the operation, since, if successful, there is so good a hope of cure.

Mr. Swinford Edwards, in reply, remarked that the diagnosis of scirrhus was made by a competent microscopist. He would not, of course, operate if there were secondary deposits in the liver. He commented on the fact that in his manœuvre Dr. Snow had cut through the growth—a proceeding which, he urged, necessarily added to the danger of infection. He agreed with Mr. Bidwell that, even if the mortality were higher than it was, the patient might even then consent to undergo this severe operation (for he admitted that it was one of the most severe operations in surgery), on the chance of a complete and lasting cure.

*May* 17*th*, 1897.

## THE ANNUAL ORATION—"THE MEDICAL SOCIETY OF LONDON IN THE EIGHTEENTH CENTURY."

By Edmund Owen, M.B. Lond., F.R.C.S. Eng.

Mr. President and Gentlemen,—On Wednesday next, May 19th, the Medical Society of London will be entering upon the 125th year of its existence. The first meeting was held on Wednesday, May 19th, 1773. Our illustrious Lettsom attended it, his name appearing second upon the list of those who had the honour of being present at its birth. At that first meeting the Rules of the Society were read and considered. Happy the nation, we are told, that has no history. Happy the Society, I would rejoin, that has no rules. If the rules of our Society have in subsequent times kept us from dangers and extricated us from difficulties, they were in the eighteenth century the cause of much bitterness and unhappiness, and very nearly brought about the wreckage of the Institution whose interests they were intended to protect. The name that stands in the minute book of the Society in front of Lettsom's is that of Dr. Hulme, who, at the next meeting of the Society, which was held on the following Wednesday, May 26th, was elected librarian, Edward Ford being appointed secretary. It was, moreover, then arranged that Lettsom should take the chair at the ensuing meeting.

You will think it proper, I am sure, that I should say something in passing about the man whose name is found in our minute books in front of that of Lettsom—the man who was picked out to watch over the establishment of the Library, which, as was always intended, should constitute a very important element in our Society. Nathaniel Hulme was a Yorkshireman, who, at the age of 23 years, entered the Royal Navy as a surgeon's mate. Eventually, he took his degree in Medicine at the University of Edinburgh, sending in as his thesis an account of a disease which, unfortunately, he must have had ample opportunities of studying—scurvy. In connection with this, he showed the benefits of lime-juice in long sea voyages. When he retired from the navy, Lord Sandhurst, who was then the First Lord of

the Admiralty, secured for him the appointment of physician to the Charter House. He went to live, therefore, in Charter House Square, where he enjoyed an extensive and an honourable practice. Unfortunately, in March, 1807, an equinoctial gale blew over, or, as I suppose, he, in nautical language, would have expressed it, "carried away" one of his chimney-pots. It was nothing phenomenal as a gale, nothing like one of those gales to which he had been accustomed when afloat, and I can find no mention of it in the meteorological records of the time in the 'Gentleman's Magazine,' but the illustrious physician and Fellow of the Royal Society thought it necessary to go aloft to see exactly what damage had been done. Getting up to the roof, he lost his balance and fell, receiving such serious injuries that he survived his fall only a few days. He had served the Medical Society well, as he had served his country; and we read in a contemporary biographical notice of him that he did "valuable work." He proved himself worthy of the place which he holds in our records, but from his calamitous fall we may, I think, enforce this obvious precept—that a physician should content himself with his proper sphere of practice.

A Society with a chairman, a librarian, and a secretary must needs find a home, and with this important business Lettsom was entrusted. The meeting room was to be "as nearly central to the respective members as possible," so the "Queen's Arms Tavern," in Newgate Street, was suggested. A good many members of our profession at the present day make their start in active life anxious, because they hamper themselves with a needlessly heavy house rent. There was to be no mistake of that sort with our budding Society. Lettsom was to hire a room for a sum "not exceeding ten guineas a year." The "Queen's Arms" business fell through, for at the next meeting Hulme and Lettsom were authorised to try to secure a vacant room in Wardrobe Court, and because a good many new men were joining the Society, the amount to be allowed for the annual rent went up with a bound to £15. With so much money at stake they thought it expedient to appoint a treasurer, and in choosing Lettsom for this office our founders made—as doubtless they knew they were making—an excellent selection, for the "Accompts Book" and the minute books show that his purse as well as his hearty and efficient services were always at the disposal of the Society.

From May 31st the members did not come together again until nearly the middle of July, probably because they had not acquired a place for meeting in; but when they then met we find their minds exercised by the same three questions—the acquisition of a room, the formation of a library, and the drawing up of the rules. The Society was not two months old when Lettsom, the treasurer, laid the foundation of our library by giving 'Percivall's Medical Observations' and the 'Medicinal Education of Children.' The title of the latter book is equivocal. Probably the "medicinal education" of children referred to the fact that as people in those days had to swallow an enormous amount of filthy physic they could not expect to survive unless their medicinal education were begun in very early life. I have not seen the book, for had I asked Mr. Hall to look it up for me I might have been deprived of the opportunity of speculating as to the real meaning of its title. At this same July meeting 29 new members were elected, amongst whom were Dr. James Sims, who a short time afterwards began his reign of 22 years in the presidential chair, and Dr. John Millar, who, at the next meeting of the Society was elected its first president. This selection, however, did not prove a happy one. Lettsom was not appointed the first president for, I think, two reasons—first, because he did not want to have himself thrust forwards in the Society which he had done so much to establish, and secondly, because he already held the very important post of treasurer.

On August 10th the sixth meeting of the Society took place, and as Millar's name is at the top of the list of those present he, doubtless, occupied for the first time our presidential chair. Lettsom at once reported that he had set to work buying books for the library, for which the Society thanked him and ordered his reimbursement. The "Accompts Book" shows that he had already spent £16 14*s.* in books. At this time the primary cleavage of the Society into three parts was established by the appointment of three standing committees of reference—one of three physicians, one of three surgeons, and one of three apothecaries. And by way of further emphasis, as applications for membership were coming in at a great pace, the Society resolved that for the present the number of its members should be limited to 30 physicians, 30 surgeons, and 30 general practitioners or, in the language of the time, apothecaries. It can scarcely be

altogether a matter of surprise, though it may be of regret, if with the vast increase of learning which has taken place in our profession—without, I suppose, a proportionate increase of mental vigour and power of endurance—secondary and tertiary cleavages have since appeared in our midst. Thus every region, organ, and tissue in the body has in turn been "specialised," from epiblast to hypoblast, and back again. But this process has surely now gone far enough—some would think too far. For it frequently happens that the practitioner who is cultivating his little allotment of epiblast, for instance, deems himself unable or unwise to look through a mere basement membrane to see what morbid changes may by chance be taking place in the adjacent, but not less important plot, which his neighbour is cultivating in the mesoblast. So it has come about that one practitioner has been daily and diligently dealing with a tuberculous patch in a larynx, and refusing all the while to recognise the fact that his trusting and hopeful patient was dying of pulmonary consumption. And that another practitioner has been lumbering up the weak back of a growing girl with what he was pleased to call a "spinal support" when all that she needed was sunlight, fresh air, exercise, and freedom. Everybody here must feel that I am not erring upon the side of exaggeration in making these remarks. And if such things have happened in the past, what is going to happen in the future? A large proportion of special practitioners of the present time are fortunately under the inhibitory influence of broad principles which they have acquired in the useful preliminary work of general medicine, general surgery, or general practice. But henceforth, it seems, the youthful practitioner is to embark in the cultivation of some speciality before the ink on his diploma is actually dry—at any rate, before blue ink has had time to turn black. We hear it urged that the public like this sort of thing. I must not stay to discuss that statement, or even to deny its truth; but supposing that the public do like it, is that a reason why we should stand quietly by whilst our profession, as practised by Hulme and Lettsom, is brought down to the level of persons who try to nourish their children upon patent foods and themselves upon quack medicines?

As I have said, our Society was originally designed to secure the collective experience of the three primary divisions of the profession. As a result of this arrangement it would be impossible,

I think, to name any other Society in which the discussions and debates are more generally instructive; and I make no empty boast when I say that, though our Society is well advanced in its second century, its work is still abreast with the times. Though it occupies itself with micro-organisms of all sorts it is not consumed by them, and though it investigates antiseptics it does not smell of them. It discusses drugs without exciting nausea, and it enters into pathological problems without becoming morbid. It is scientific without overbearance, and it is never dull. At least, not often. Our founders wished us to be cheerful; and so we are, without effort.

## John Fothergill.

Though John Fothergill is one of the Patron Saints of the Medical Society of London, he was never one of its Fellows. He was not, as has been erroneously stated, "one of our founders." The veneration in which he is held by us is chiefly due to the fact that he was the dear friend of our Lettsom, and, during the first ten years of his professional life in London, his guardian angel. Lettsom said of him: "My medical creation was his, and my success in life the result." We esteem him also because he was "one of the first physicians of the age." This was Lettsom's estimate of his professional position, and, looking through contemporary medical literature, it seemed to be a just one. He was, moreover, a man of immense learning and information. He apparently knew all that was known at that time in the natural sciences. His botanical garden at Upton, near Stratford, was celebrated throughout Europe and America. He had 15 men constantly at work in it, and there were other persons employed in making drawings for him of its trees, plants, flowers, and fruits. He was a Fellow of the Linnean Society, and was reckoned to be one of the chief authorities of the day upon shells and corals. He was a considerable chemist, and he was a judge in matters of Art, and it is not unlikely that his young friend, Lettsom, acquired from him the insatiable thirst for collecting. John Fothergill was a member of the Medical Society of Edinburgh, and in 1776, when a medical society was being founded in Paris by the King of France, he was one of a select number of foreign physicians whom the society thought proper to honour with their diploma. Feeling as we do towards

Fothergill, we cannot but regret, as we look back, that he was not a Fellow of our Society. But Fothergill was not a man to do things by halves, and probably Lettsom deemed it unkind to attempt to enlist his help at the foundation of the Society, busy man that he was. It must be remembered that as at that time, 1773, Fothergill was in his 62nd year and over-burdened with private practice, that as he had a mansion as well as that enormous garden at Upton, and a country seat near Warrington, and that as his hands were full of, and running over with, philanthropic schemes of all sorts, he could hardly have had any time to devote to launching a Medical Society. As a matter of fact, he could rarely steal away to his house and grounds at Upton, and often, when he did get there, it was so late at night that the only way which he could obtain enjoyment and profit out of the garden was with the help of a lantern. Lettsom, however, was at that time under 30 years of age. He was full of energy, and he had, it is to be surmised, sufficient leisure.

Doubtless Lettsom told his friend of all that was going on in connection with the beginnings of our Society, seeking and obtaining his advice and, I think, acting upon it. There was no better man to go to for advice in the matter than Fothergill, as he had great practical experience in the working of a Society of Physicians of which he and William Hunter were the leading spirits. (Of this Society I shall have a good deal to say shortly.) But here Fothergill's interest in the Medical Society of London must have ended. In the "Cash-Accompts Book" of the Society from its foundation to the beginning of the nineteenth century, in which are found the names of all those paying their entrance fees and subscriptions, the name of John Fothergill is conspicuously absent. The circumstantial evidence which this book supplies in support of my statement that he was never a Fellow of our Society is incapable of refutation. For the unearthing of this valuable book, as for much else in the preparation of this Oration, I am indebted to Mr. Hall, the Registrar of our Society. In the early minute books of the Society and of the Council the name of John Fothergill does not appear as a Fellow, nor can I find that he ever attended as a visitor. Fothergill had an enlarged prostate, to which, as I learn from the pages of the 'Gentleman's Magazine,' he gave neither attention nor consideration. But Nature is jealous; and in the year 1772, when he was only

61 years old, he began to break up. He had just lost his younger brother, Samuel, the celebrated preacher, and he said, in his bodily distress and in his sorrow : "Our health is no more at our command than length of days. Mine seems drawing fast to a conclusion. Though painful my nights and wearisome my days, yet I am preserved in patience and resignation." Next year—the year of the foundation of our Society—he was "much oppressed"; but he said that he hoped to follow in the steps of his dear brother through what he called "the remains of this life." It would not, therefore, have been a friendly act had Lettsom tried to induce him even to lend his name to the new Society.

There is another matter in connection with Fothergill to which I wish to refer. Some of his biographers state that he died from "suppression of urine." Lettsom himself says it, but the statement is incorrect. Alluding to the fatal illness of December, 1780, he says : "He was again seized with a suppression of urine, which no art could remove." But in that he speaks of his being on that occasion "as serene as in perfect health," he obviously could not have meant that Fothergill was the subject of what we understand by "suppression of urine." Alluding to a similar attack which the patient had undergone just two years previously, Lettsom wrote that on waking out of a short sleep his illustrious friend was attacked with a forcible inclination to make water, but without the power. "At length," he writes, "a total suppression came on that required manual assistance for two weeks, which was sometimes accompanied with excruciating pain. . . . . In the height of his distress I visited him and found him calm and collected." Without doubt someone (not Lettsom) was trying to relieve him from time to time with a catheter, and with greater vigour than success. There was some "suppression" in connection with Fothergill's fatal illness—not of urine, but of an important clinical detail. Somehow or other Lettsom omitted to say in his memoir that after death two quarts of urine were found in the poor physician's bladder. This interesting piece of information I discovered in the 'Gentleman's Magazine' for 1781.

How has it come about, in spite of the absence of any evidence in that direction, that John Fothergill has so generally been considered to have been one of the fathers of our Society? If we turn to the 'Memoirs of Fothergill,' by Lettsom, we find a heading to the effect that they were "read before the Medical

Society of London, July 17th, and October 23rd, 1782." Why, it might well be asked, should Lettsom have read those Memoirs before our Society if Fothergill had no connection with it? The answer is that though Lettsom read the well-known Memoirs "before the Medical Society of London," he did not read them before *our Society*, which was then meeting on the first Tuesday of every month, as recommended in February, 1781. In 1782 our Society met on July 2nd and October 1st. July 17th and October 23rd, the days when Lettsom read the Memoirs, were Wednesdays. About the middle of the eighteenth century some physicians in London agreed to meet together for their mutual improvement in the practice of their profession. They were either such as had the care of hospitals, or, to quote their own words, "were otherwise in some degree of repute in their profession." When these meetings had continued a considerable time, some of the members (Fothergill amongst them) decided to publish their proceedings. So, "with some other physicians," they formed themselves into a Society for collecting and publishing 'Medical Observations and Inquiries.' They regarded it as a reflection on the faculty that no attempts of that kind had hitherto been made in London. The first volume appeared in 1757.* These eighteenth century physicians were not only persons "in some degree of repute," but also of prosaic common-sense, for they said in their preface that they did not want papers the chief tendency of which was "to show the parts and erudition of the writer." They also said that they did not intend to publish all the papers which might be sent in to them, but that useful observations, described with clearness and candour, would be "thankfully received." They particularly asked for notes of unsuccessful cases, and for "accounts of errors in the cure of diseases." Concerning the question of "errors in the cure of diseases" I will not venture to make any remarks, my practice being confined entirely to surgery; but I cannot refrain from expressing my strong approval of their desire to have notes of unsuccessful cases. A hundred years hence, or in less time than that, when the practitioner in the few diseases which are left for him to treat, takes down from the dusty shelves the volumes containing the reports of our Societies, and the records of our

* 'Medical Observations and Inquiries,' by a Society of Physicians in London, 1757.

treatment, he will say: "These men at the end of the nineteenth century were not void of dishonesty. They wrote and talked as if all their patients got well, but we know that they did not. They seem to have carved the records of their successful cases upon the rocks, but if ever they thought of their failures, the utmost that they did was to scratch them upon the sands of the sea at low-water mark." Would it not be a good thing if our Society set apart one or two evenings in each session for the discussion of unsuccessful cases and of those which have ended in disaster? They should be called "confessional evenings," and I am sure that they would be well attended. There should be no reporters present, and I believe that a good many of our Fellows would take part in the debates, even though their remarks would not appear in the forthcoming number of the 'Lancet.' What pleasant evenings could be spent in discussing the hideons mistakes of other people! If anyone asks if I would contribute to such "confessional evenings," I would venture to remind the Society that a few years ago I thought it my duty to bring forward the report of a case in which, to my extreme sorrow, a misadventure on my part brought a simple operation to a fatal conclusion. I am speaking, therefore, from sad experience when I say that such a course is right and proper. And I will also say this, that there is no Society in London where the candid confession of practical error would be more faithfully or sympathetically received. The venerable age of the Medical Society of London has happily brought with it a kindly and paternal spirit which has come down as a precious heritage from Lettsom, and through him from Fothergill, so that we, its children, are able to look up to it not only with respect but affection. I cannot but think that it would be well for the aggressive spirit of modern methods to wrap itself in a sheet from time to time, to acknowledge that it is not yet infallible, and here to be shriven. That our founders intended to have authority amongst the Fellows and to exercise it, sometimes with severity and sometimes with gentleness, but always with impartiality, is evident to anyone who reads the records of their early doings. And it is not without significance that *the very first disbursement* which they made on behalf of the Society, on May 27th, 1773, was a sum of five shillings for a hammer.

Let me now return to the Society of Hospital Physicians—of

physicians in some degree of repute, and of "others," who were to receive, consider, and possibly publish the medical observations which might be sent in to them. They worked diligently, and, happily, without ostentation—two excellent qualifications for solidity and success. It was on behalf of this Society that Fothergill burdened himself with collective investigation concerning the epidemic of Influenza as it appeared in various parts of the country towards the end of the year 1775. This labour was duly acknowledged in the sixth volume of their 'Observations,' which they published in 1784. They say that from the materials collected by Fothergill from the faculty at large, and from his own sketch, he had intended to form a complete history of the disease, but that which his sudden decease in 1780 prevented him performing, the Society "endeavoured to accomplish." "Indeed," continues the preface, "considering the not unfrequent return of this epidemic, how troublesome it was to most, how it affected many with lasting debility, and, though not dangerous in itself, how it accelerated the fatality of dangerous distempers, it deservedly becomes an object of serious inquiry to the faculty." Within two years of Fothergill's death —namely, in 1782—this pestilence was again upon them with unabated vigour; and as it concerned "the Medical Society of London in the eighteenth century," I shall have occasion to refer to it later. Just now, however, I am, or ought to be, explaining how it is that Fothergill has so generally been considered a Fellow of our Society.

Fothergill had sent printed circulars to medical men in town and country with the view of working out a better understanding of the disease, and the replies to it, which are published in the volume, show that in many respects it closely resembled the influenza of the present time. I personally have had a greater experience of influenza than most medical men. But lest I might be considered by this statement to have wandered out of the narrow paths of surgical practice, and even into the realms of boastfulness and arrogance, I hasten to explain that what I mean is that I have been attacked by the disease far more often than I desired, and I think, speaking, at any rate, from an actuarial point of view, than I deserved. Justice was, indeed, blind in wasting upon me, a surgeon, a personal experience in influenza which might have been useful in the establishment of a physician.

However, my experience of the disease has rendered my study of it in these old volumes of more than an antiquarian interest. The replies which Fothergill received gave a graphic description of the suddenness of the onset of the disease; of the pains in the head, back, and limbs; of the foul tongue, the loss of taste, and of appetite and of sleep; of the soreness of the windpipe; of the dejection of spirits, and of the terrible debility. The well-known Dr. Cuming said that in Dorsetshire, in many gentlemen's families, not one servant was free from the disorder. Horses and dogs, moreover, were affected by it. Worse than all, the horrors of the influenza of the eighteenth century must have been actually increased by treatment, for physicians and patients seemed alike under the influence of a blind faith in venesection and nauseating drugs.

The Society of Physicians met every month, and Elliott tells us that Fothergill was rarely absent from the meetings. As I have already said, John Fothergill and William Hunter were prominent members of this mutual improvement society, to which, in 1756, in the ordinary course of business, Fothergill read a paper, which, in the table of contents which followed the preface to this volume, is described as being "communicated to the Medical Society." This Society of Physicians was, of course, a medical society, but it was not the Medical Society of London. No, Fothergill's Medical Society was 20 years older than Lettsom's. Lettsom was a member of Fothergill's Society; but Fothergill was not a Fellow of Lettsom's Society.

Fothergill was president of his Society at the time of his death, 1780, and the members naturally called upon his intimate friend and their fellow-member, Lettsom, for a memoir of him. (It will be noticed in the bold heading of this memoir that, though Fothergill's society is called the Medical Society of London, the words "the" and "of" are not spelt with capital letters, as they should have been if they had referred to The Medical Society of London, which obviously they did not do.)

There is a verse in the First Book of Kings which might almost have been written of Fothergill: "And he spake of trees, from the cedar tree that is in Lebanon even to the hyssop that springeth out of the wall. He also spake of beasts, and of fowl, and of creeping things, and of fishes." But Fothergill did not regard the vegetable and animal kingdom merely from the point of

view of the biologist. Though his interest in them was certainly scientific it was also strongly utilitarian—and particularly with reference to materia medica and foods. Thus, in 1767, he spent a considerable sum of money in connection with a scheme which should enable the poor and the middle ranks of housekeepers to purchase fish at a low rate in London. In the same manner he set to work to have potatoes which had been bought cheap in Lancashire brought up to town by water. It would take a stronger man than the gentle Fothergill, I fear, to break up the "fish ring." We are told—I know not with what truth—that at the present time wholesale dealers would, at times, rather destroy fish at the seaside than send it to the great cities where it could be sold at a cheap rate. Such a monstrous act would be to rob the poor; and the day may not be far distant when it would be punished as a crime.

I suppose that one great cause of the spread of the erroneous belief that Fothergill was a Fellow of our Society is due to a sentence which occurs in Pettigrew's 'Life of Lettsom'—a work to which anyone would naturally refer who was specially interested in the early doings of this Society. On pages 86 and 87 of the first volume he writes: "Dr. Fothergill was, at the time of his decease, the President of the Medical Society of London, at whose meetings papers and other communications on medical subjects were read or made. Many of these were furnished by Dr. Fothergill, and the members felt desirous of having some account of his life submitted to them. Accordingly, Dr. Lettsom was requested to draw up the Memoir." I cannot understand how Pettigrew came to make such a slip. It seems the more inexcusable in him as he was not only a Fellow, but also the Registrar of our old Society. Although he was writing a life of Lettsom, and not of Fothergill, his mention of Fothergill ought to have been made with accuracy. And though the date of his writing was in the thirty-seventh year after Fothergill's death, it would have been quite easy for him to verify the truth of his statement. Probably he had been misled by the wording which appeared at the head of Lettsom's Memoir. But if we cannot hold Pettigrew excused for the error of making John Fothergill a Fellow of our Society, what is to be said when Dr. Munk, a Fellow of the Royal College of Physicians and the illustrious medical biographer, falls into it? In his account of

the life of William Hunter, in the 'Roll of the Royal College of Physicians,' he says: "On the death of Dr. Fothergill, Dr. Hunter was unanimously elected President of the Medical Society of London." Dr. Munk also failed to distinguish the Society of Physicians, of which John Fothergill and William Hunter were the leading spirits, from the Medical Society of London.

## Dr. Lettsom.

For every Fellow of this Society the name of Lettsom has a charm, and although he may not be acquainted with the details of the private and professional life of this gentle Quaker practitioner, he cannot be much within these walls without becoming influenced—he may not know exactly how or why—by unconscious memory of him.

> "The evil that men do lives after them;
> The good is oft interred with their bones."

But so was it not with Lettsom. The more closely his history is studied the stronger does the feeling grow that he was a man to be revered. He certainly has left no evil influences behind him, and it was not possible that all the good he did could be interred with his hallowed bones. It is no empty phrase to say that the world is all the better for the fact of Lettsom having lived. Certain is it, moreover, that our Profession has benefited by his life and example. And as for the Medical Society of London, if it is not wholly indebted to him for its conception and creation, it is at least greatly indebted to him for its preservation and for much of the success and respect which has attended it throughout its long and eventful life. There was no self-seeking about Lettsom — no vaulting ambition; his chief thought was for the happiness of others, and wherever he went he was doing good. Pettigrew truly said of him that to detail his useful career is to pronounce his highest eulogy.

John Coakley Lettsom was born in the West Indies in 1774. He was one of twin boys, and, previous to his birth, his mother had six times had twin boys. He was educated in Lancashire, and soon after his sixteenth birthday he was sent as an apprentice to Abraham Sutcliff, a surgeon-apothecary at Settle, a dull little town at the top of Ribblesdale. About the second year of his

apprenticeship Lettsom began to visit patients. Pettigrew says, with a sigh as it were, that he doubts if he was then quite fitted for that particular work, as he had never attended a lecture or seen any anatomical figure except a skeleton. The old apprenticeship system encouraged this sort of thing, and it proved the ruin of many a would-be medical man, casting him adrift with a thin veneer of practical information upon a foundation of solid ignorance. But it did not spoil young Lettsom, who kept on steadily working at natural science and languages as well as at his profession. At the end of his five years' apprenticeship he came to London, where he did not know a soul. But he brought letters to Fothergill, who was then 54 years old, Lettsom being his junior by 32 years. It is well to keep in mind the fact that Fothergill was 32 years older than Lettsom, for as the acquaintance between these men ripens into deepest friendship, and we see them side by side, this is practically the only difference that we find between them.

Probably the chief object of Lettsom's journey southwards was that he might advance his professional knowledge by practical work in the wards of a Hospital, for London was then, as it still is, the finest field for clinical work in the British Isles. Then, as now, however, by some absurd miscarriage, the well-skilled practitioner who desired to obtain a degree in medicine had to go elsewhere for it. Lettsom went to Leyden for his. Had he lived at the present day, he might possibly have gone to another friendly kingdom and secured for himself a Doctorate with dispatch and "with distinction." I do not mean by this that the medical man who has been educated in London acts unwisely in going abroad for a degree in medicine. On the contrary, I commend his prudence; for a degree in medicine, no matter whence it comes, is of real practical value. What I wish to emphasise is the strange anomaly that in this vast metropolis, second to none in clinical wealth and educational advantages, there should not be a degree in medicine obtainable by the general run of students. The result is that London as a teaching centre is being deserted, and its clinical advantages ignored, in order that students may undergo their medical training in other cities, and in towns, where they are able to secure the title of M.D. as a fitting reward for diligent work.

Young Lettsom saw a great deal of Fothergill, whose professional

position and success fired him with the ambition to establish himself in London. But he had no money. In twelve months the small store that he had brought was exhausted, so he packed his ambition in his trunk and set sail for Tortola, in order to take possession of the little property left him by his father. This consisted of a small portion of land and about 50 slaves. At that time, says his friend Pettigrew, he was not possessed of £50 in the world; but he at once set his slaves free, and by so doing became a voluntary pauper at the age of 23 years. He did not take this step because he was so advised or because it seemed "advisable," but because he could not tolerate the idea of trafficking in human blood, and because, as Pettigrew says, he thought it right to do unto others as we would wish they should do unto us. This, in brief, was Lettsom's religion, as also it was the sum and substance of the teaching of the Great Physician in whose step he humbly tried to walk.

Gentlemen, at the present moment we have urgent need of another Lettsom to set free slaves; and I say with sorrow that these slaves are members of our profession—medical brethren who, unable or unwilling to engage successfully in its honourable practice, have sold their birthright, their art, and their independence to trading clubs, called medical aid societies. It is not for me to enter with ungenerous detail into the actions of brethren thus enslaved. Possibly, indeed, had I been placed in similar circumstances, I might have entered into the same servitude; but of this I am certain, that had I done so, I should long to be released from it. And so, surely, do they. The question is, How is their freedom to be secured at the earliest possible moment?

Many years ago there lived in Mantua a family medical attendant who found it difficult to make both ends meet. What his name and qualifications were we have not been told; he is simply called "an apothecary," which, as I just now remarked, was in former days the title of the general practitioner. Nor does it transpire why he had proved a failure in practice; but from representations which we have had of him upon the stage, I think that he must have been lacking in that essential for success in family work, "a good bedside manner." A broken-hearted lover wanted to buy some poison from him, but he had qualms about selling it. Qualms are conscientious objections which yield to opportunism, so, without needless waste of time, the apothecary handed over

the poison, remarking, as he did so, that his poverty but not his will consented. I suppose that the medical men who have entered into the slavery of the trading medical associations would make the same unctuous remark. At least, I understand that when one of them is asked by a brother practitioner, whom by the acts of his association he is helping to ruin, if he approves of such acts, he rejoins, in shame and degradation, "What am I to do?" And at the same time he shrugs his shoulders, as if to imply that, though a slave, he has not lost all sense of honour—that at least his will did not consent. All the same, he is in the pay of those who are sending round male and female touts—agents they are called—whose business it is to undermine the practice and steal the patients of his brother practitioner. If, when doing this, they smirch his reputation and reduce to the level of paupers those who had hitherto been able and willing to pay him adequately for professional services, what is that to them? Let the galled jade wince; their withers are unwrung!

These trading medical associations are sometimes also life insurance companies, which endeavour to attract insurers by offering the collateral advantage of gratuitous medical attendance by the practitioners whom they are "sweating." Probably the directors of these companies have already found that plan to give good results in their daily work, when, as pushing grocers, they throw in a present of sugar to each purchaser of a pound of tea.

Note how skilfully the immortal playwright managed that Scene in Mantua. He has got rid of Balthasar, who had brought the love-stricken Romeo the news of the supposed death of the lady, as his presence might possibly have interfered with the conclusion of the nefarious bargain by the apothecary. Certainly, if Friar Laurence, or any other strong man, had been about, the lover would never have dared to make the tempting proposal to the pliable practitioner. It would not have been necessary to say to the apothecary that such an act would be unworthy "in a professional sense"; a mere shake of the head would have been enough to stop it altogether. Anything more discreditable to the honour of our Profession than this commercial compact with medical associations it would, I should think, be difficult to imagine. It is disgraceful in a professional sense, and should have been stopped long since. A mere gesture of disapproval on the part of the head of our Profession would have checked its

inception. And where, it is asked, is our stern though paternal Friar Laurence, the guardian of the registered practitioner, and the keeper of our professional honour? Where, all this time, is the General Medical Council? It may be that, though individual members of that Council have possibly heard rumours of the existence of the discreditable alliance between Art and trade, their attention has never been officially called to it, or their powerful and much-needed aid invoked. Here, therefore, from the Chair of the Orator of the Medical Society of London, a Chair which Lettsom the Liberator occupied on no less than three occasions, I beg leave to proclaim to the General Medical Council the existence of the abuse, and to appeal to them to "come over and help us."

The West Indies must have been more prosperous 130 years ago than they are to-day; for, starting in practice in the small island of Tortola, Lettsom made nearly £2,000 in five months. Half of this he gave to his mother; the rest he placed with his ambition, and came back to London with the view of following in the wake of Fothergill. Even at the present time a young man who is fired with an ambition to practise as a consultant in London might do worse than follow the example of Lettsom with respect to a certain delicate matter. He had probably thought it well out, for Pettigrew says:—"He determined upon forming a matrimonial connection with an amiable young lady, the daughter of a wealthy tin-plate worker." The union turned out an extremely happy one, so that we may assume that, though the gentle Quaker happened to marry where money was, he did not marry for money. Such an act, indeed, would have been entirely foreign to his nature.

A few words about the death of Lettsom shall close this short notice of him. The manner of his death should act as a warning to us. It was as follows:—For some time he had been attending a gentleman whose case proved fatal, and he was desirous that the body should be examined. The necropsy was chiefly made by himself on October 22nd, 1815. He remained in the cold room for two hours, and on the next day he felt chilly and unwell. Then strong rigors came on, with fever and with severe pains in the arms. He suffered intensely, and, becoming delirious, sank exhausted on November 1st. Making a *post-mortem* examination in a private house is usually a depressing and chilling business.

The window is partly open and there is no fire in the grate. And when on a late October day a man 71 years of age, probably with his coat off, spends two hours in the cold room, what wonder if he contracts a "chill"? He probably absorbed a large dose of septic material. Lettsom diagnosed his fatal illness as "rheumatic." Septic diseases were not as well understood then as they are now, and even at the present time they are not infrequently regarded as "rheumatic." Probably the patient whose body the earnest physician was examining had died from some obscure septic disease. That Lettsom was not clear as to its nature is evident, I think, from his spending so much time at the necropsy.

### A Loyal Address.

A Resolution of the Council of the Medical Society of April 3rd, 1789, is especially interesting to us to-day in that it expressed the desire of presenting an Address to His Majesty on his happy recovery. For carrying out this resolution special meetings of the Council and the Society were held, the Address was duly sent up, and at a subsequent meeting it was resolved that Lord Sydney's reply on behalf of His Majesty be inserted on the minutes. To say that this summer of rejoicing, 1897, finds the Medical Society of London still loyal is feebly to express the feeling of its Fellows, for "that fierce light" which has beat upon the Throne throughout the last 60 years has been reflected straight into the hearts of Her Majesty's subjects, turning *loyalty* into *love*.

### The Medals.

John Fothergill died when the Medical Society of London was seven years old, he being then in his sixty-ninth year. Lettsom, as we know, felt his loss very keenly, and four years after his death he wrote to the Society as follows:—

"Gentlemen,—To preserve the memory of illustrious characters by some permanent memorial is not only grateful to the friends of the deceased, but excites in the living that commendable emulation which leads to great and virtuous actions. Such were those which will render dear to distant posterity the name of Dr. John Fothergill, in memory of whom I have ordered a medal to be struck, under the patronage and at the disposal of the Medical

Society of London, held in Crane Court, Fleet Street. It will be in gold, of ten guineas' value, to be called the Fothergillian Medal, and to be given annually, on the 8th day of March,* to the author of the best Essay upon a Prize-Question proposed by the Society," etc., etc.

"JOHN COAKLEY LETTSOM."

The date of the letter, May 25th, 1784, is interesting from the fact that on that very day Lettsom had been reading to the Society a clinical report of the case of Dr. Fothergill, for which he had received the usual thanks. The preparation, or the reading of this Paper, or the reception which it got at the Society, had doubtless filled his heart with recollections of his dear friend, and with a burning desire that time should not be allowed to completely efface the fading memory of so good a man. The letter was read at a general meeting on Thursday, June 4th, 1784 (although Tuesday was the proper meeting day), and a vote of thanks was unanimously passed to Lettsom for his generous offer. In the following week the Society again met, and a committee was appointed to consider the design, and a plan for the distribution of the medal.

Within a fortnight the committee brought in their report; they proposed that the obverse of the medal should contain the head of Dr. Fothergill with this legend: "Fothergillius, Medicus, Amicus, Homo," together with the date of his birth and death, and that the reverse should exhibit Hygeia, holding in her right hand a wreath to crown the successful candidate, who is presented by Esculapius, together with certain letters which briefly indicated that the medal was the gift of the Medical Society of London, which was instituted in 1773. This design seems somewhat ambitious; and I think that when it was shown to Louis Pingo, the artist who was to engrave the die, he must have told the committee that the order was rather too extensive for satisfactory execution. I should think that even Benvenuto Cellini himself would have stood aghast at the proposal. It is to be noticed that Lettsom said nothing in his letter about investing a sum of money to defray the annual expense of the medal, and the Society raised no question upon that point. He simply said: "I have ordered a medal to be struck." But inasmuch as the details were subse-

* The birthday of John Fothergill.

quently to be arranged by a committee, he could not then have actually given the order for the striking of the medal. Indeed, the design which he and the other members of the medal-committee proposed was not in the end adopted. The medal, as eventually struck, is thus described by Mr. Grueber from the specimen in the British Museum :—Obverse : Bust of Fothergill to right, in wig and close-buttoned coat. Legend, *Johannes Fothergill, Medicus Egregius, Amicis Carus, Omnium Amicus.* Reverse: Within laurel leaves, in which are entwined two serpents, *Medicinæ et Scientiæ Naturalis incremento.* Above, *Don. Soc. Med. An. Salut.* 1773, *Instit.*

Thus the design proposed by the committee had been considerably tamed down and, I think, improved before the die was engraved. I have the pleasure of showing a replica of the original John Fothergill medal. Mr. Grueber's description omits to state that the dates of the birth and of the death of Fothergill are given upon the rim of the medal. So far as I can ascertain, only seven examples of this medal were ever struck in gold, one of which was presented to King George the Third as a specimen ; this is now in the British Museum. One was awarded in 1787 to Dr. Falconer, of Bath, and three years later one to Dr. Willan, the dermatologist. In 1791 Lettsom himself had the pleasure of receiving one for his prize dissertation. Mason Good and Bouttatz received medals in 1795 and 1801 respectively, and in 1803 Edward Jenner was awarded the seventh and last.

It is the custom, I believe, in certain societies (not medical) for each individual to break into a thousand pieces the glass out of which some toast has been drunk which is specially dear to the hearts of those present, so that by no possibility can the glass which has been thus honoured be submitted to desecration. Extravagant as the custom may seem, there is a beautiful sentiment underlying it. As we look back it is with considerable satisfaction that we learn that our illustrious colleague, Edward Jenner, was the last recipient of Lettsom's Fothergillian gold medal—Jenner the greatest benefactor of the human race that ever lived. After this it is well that we hear nothing of medals subsequently struck from that die. By honouring Jenner it had fully honoured the Society, and had brought its work to a splendid close. But, gentlemen, if that die were yet in existence we could show upon our roll of Fellows the name of one for whom it

might still be struck upon purest gold—of one who, second only to Jenner, has been a benefactor of the human race. Need I say that I refer to Joseph Lister?

The first gold medal, then, was obtained by Dr. Falconer in 1787, and at the Society's meeting on April 9th of that year a letter was read from him saying that he would be up in London in the following June in order to receive it. Thereupon, "Dr. Lettsom was appointed to deliver him the Fothergillian Medal in form." On Friday, June 1st, there was a small meeting of the Society, at which Falconer took his seat as a corresponding member, but the only business recorded is the decision that the presentation of the medal should be postponed for eight days—namely, until Saturday, the 9th. There was a very good reason for delaying the presentation of the medal—the Society had not yet received it from the unbusiness-like artist. On Monday evening, June 4th, a meeting of the Society was held in the ordinary way, and a good deal of business was done at it. Falconer, who was present, must have been impressed with the energy and prosperity of the Society. But he and everyone else must have felt sympathy with Lettsom in that the Fothergillian business was hanging fire. Here is an extract from the minutes for that night:—

"Dr. Lettsom informed the Society that as, through the neglect of Pingo, who was entrusted with the execution of the Fothergillian medal, and has had it in his hands for upwards of a twelvemonth, there can be no probability of getting the medal out of his hands so soon as might be expected, so that it could be presented to Dr. Falconer on Saturday night, and Dr. Falconer having signified that his staying in town would be attended with inconvenience, it was proposed that Wednesday evening should be fixed on for the delivery of a *model* of the Fothergillian medal to Dr. Falconer, which proposal, being moved and seconded, was agreed to *nem. con.*, and the messenger was ordered to summon the members for Wednesday evening at the usual hour."

I make no apology for going into detail in connection with the delivery, or, rather, the non-delivery, of the first Fothergillian medal, for the account cannot fail to be of interest to every Fellow of this Society. In accordance with the resolution just read, an extraordinary meeting was held on Wednesday, June 6th,

1787, one of the last meetings held at the Society's house in Crane Court. There was a large attendance of members, and the meeting was honoured by the presence of upwards of fifty visitors. Dr. Sims duly stated from the chair the business for which the Society was convened for that evening, and although it was an extraordinary meeting the minutes of the last meeting were read and confirmed, and also various other minutes which had reference to the institution of, and to regulations concerning, the Fothergillian medal. After signing the minutes the President left the chair in favour of Lettsom, who delivered an elaborate address, which at the beginning was metaphysical, and then, turning into a eulogium of Fothergill, ended with the apotheosis of Falconer. After this "he delivered publickly a model of the Fothergillian medal." Falconer replied, and then Sims resumed the presidential chair and moved a vote of thanks to Lettsom, not only for his Address of that evening, but for the great interest, liberality, and assistance which he had always extended to the Society. Falconer must have had plenty to think about as the stage-coach was taking him and his dummy medal down to Bath.

On March 12th, 1787, Dr. Sims moved a resolution to the effect that a silver medal bearing the same device with the Fothergillian medal "should be given annually by the Medical Society to the author of the best dissertation on any other medical subject." This was unanimously agreed to, "with a proviso that the ordinary members of this Society shall not be allowed to be candidates for the said silver medal." Lettsom was at this meeting; doubtless he and Sims had talked it over beforehand. But I suppose that the members of the Society objected to being cut out from all possibility of acquiring the silver medal; so we are informed in the preface to the second volume of the 'Memoirs,' published in 1789, that there should be two silver medals adjudged annually, one to the author of the best Essay read before the Society within the year, written by a Fellow; the second for the best essay by any other person. A Fellow, I might remark, was any member of the Society who resided within seven miles of London. Thus at the end of the eighteenth century our Society was prepared to present annually one gold medal and two silver medals in the interests of the advancement of medical science.

## The Memoirs.

The volumes of Memoirs which our Society published in the eighteenth century are a mine of wealth, and many of the articles are written in a forcible and picturesque style, which greatly adds to the pleasure of perusing them. Towards the end of the second volume, for instance, there is a long letter from Dr. Hamilton to Lettsom on the Influenza which occurred in 1782. Here is a small piece of it: "Few diseases ever produced loss of strength more suddenly. The crew of the *Fly*, sloop-of-war, was an instance of this. The captain affirmed that forty of his men fell ill in less than eight hours, several of whom dropped down at the wheel as they steered the vessel. This circumstance obliged him to put back and stand again for the Yarmouth Roads, which he had left only a few hours before (with all hands apparently well), merely for want of hands to navigate her." In that terrible epidemic, as at the present day, influenza knocked down medical men with as little discrimination as it did their patients. Hamilton himself took it severely, dropping down at the "wheel, as it were." "But," said he, "the nature of my situation and the number I was obliged to visit prevented me from taking that care of myself which I recommended to others." There was no chance for him of "putting the ship back"; he was compelled to stand at the wheel even if he had to be lashed to it. And so it is with many a practitioner to-day. From no sordid motive, but from a sheer sense of duty, he goes his daily round attending people, many of whom are not feeling half as ill and miserable as he is himself. "It happened frequently in that epidemic," continues Hamilton, "that patients insisted on being bled; 'many were bled by my young man,' says a surgeon, without advice." The young man was, of course, the unqualified assistant of that day. In the advertisements of more recent times he called himself "a gentleman of experience, *sine diploma*" —as if that were actually a qualification for practice. He usually considered himself perfectly competent to treat a case of heart disease, though he might never have seen a mitral valve; to deal with an obscure injury to an elbow, though he had never dissected a joint; or to look after a man with Bright's disease, though he had never handled a test-tube or looked down a microscope. He plumed himself all the while on the fact that he was a "practical"

man, and, strange to say, there were many patients who shared with him the good opinion which he had of himself. There was apparently only one professional act which he could not do, and that was to sign the death-certificates which considerable practice and familiarity enabled him to fill up with speculative precision. Fortunately he is now a thing of the past, the General Council of Medical Education having sent him on a mission to minister to the necessities of the dodo and the great auk.

It is interesting to learn that when Dr. Hamilton took the influenza he declined to be bled. The grounds on which he excused himself from submitting to so orthodox a measure are worthy of study. "Besides," says he, "I am apt to think our constitutions are considerably changed this last century in Great Britain. Luxury, and its enervating effects," and so on, and so on. We hear the same croak at the present day. "Our constitutions are changed," and of course for the worse. "Men are not what they were; it was just the same in Ancient Rome," and stuff of this sort. Before we need pay any heed to such rubbish we must forget what Britishers and Irishmen have done in recent years; how they were tried by, but triumphed over, the severities of Crimean cold; the scorching horrors of a mutinous India; the fatigues of forced marching in wild Afghanistan; and, yet later, the difficulties which Nature herself had strewed in the pathless route that brought them to the glorious relief of Chitral.

Reading, or merely glancing through, the early records of this Society one cannot but be struck with the earnest and practical nature of the communications, with the width of the range which they cover, and with the fact that they were made in almost equal share by the three classes of its Fellows. From the first this has been to the great and manifest advantage of our Society, and may the arrangement long continue. During the time that, in various ways, I have been concerned in the affairs of this Society I have noticed, I am glad to say, but little indication of a desire to leave the old and the good for the sake of the new, but not necessarily the better. I must confess, however, that it was lately a bitter grief to me to see our ancient presidential chair of mahogany replaced by a modern one of lighter wood. But our meeting-room has been rendered so increasingly attractive and comfortable by a somewhat rapid evolution that I am quite willing to admit that those who differed from me on that occasion were

not irrational. Further than this, however, I will not go. But while I am upon the question of our furniture, I would like to ask how it is that our worthy President is not wearing the cocked hat, without which our early Presidents did not consider themselves respectfully attired? The first "Accompts Book" shows that for a "hat for the President" we paid £2 10*s*. Why, I would ask, is that hat not in evidence to-night? In Medley's great picture of a Meeting of the Society the old cocked hat is duly represented.

The shortness of the time allotted for an Oration has prevented my touching upon many important incidents in the history of the Medical Society of London in the eighteenth century. I have not been able, for instance, to refer to the battles which took place over the drawing up of the Rules or to the exciting occasion when the Society found itself locked out of its own rooms. Nor to the gentleness and wisdom which Lettsom showed as he helped —to use the words in the minute book—to establish the Society upon a basis of permanence and dignity. But all these things, and how Lettsom came into possession of a turtle and instead of regarding it as a subject for comparative anatomy presented it to the Society, together with an invitation to each member requesting the favour of his company at the King's Head Tavern in the Poultry, on a June afternoon in 1775, where they made merry, feasting on its fat and its fins; and the house in Bolt Court which he gave for their Meetings, and the many kind acts which he did—are they not written in the books of the chronicles of the eighteenth century? These books are of priceless value to this Society, though they have not always been treated with becoming respect. But this Oration—to which you have listened with so much patient indulgence—will not have been in vain if it have the effect of obtaining for those old volumes appropriate bindings and a secure custody in a fire-proof safe. They contain the log of our *Mayflower*, and they are well worthy, not only of our occasional study, but of our continuous and reverential care.

# CLINICAL EVENINGS.

*November 9th*, 1896.

## GASTRO-ENTEROSTOMY WITH A MUCOUS LINING TO THE ARTIFICIAL OPENING.

By C. B. Lockwood, F.R.C.S.

Mr. Lockwood showed a case of gastro-enterostomy. The operation was done on January 13th, 1896, for cancer of the pylorus, and the patient was now shown in good condition and increasing in weight. The operation had been done by a method which was not usually practised by other surgeons, but which aims at providing the artificial opening with a complete lining of mucous membrane. This is a point of great importance. A mucous lining renders the immediate result more secure against escape of contents, and subsequently seems calculated to prevent the closure of the opening. Briefly, the operation was done as follows:—First, the peritoneum of the jejunum and of the front of the stomach were sewn together for at least 3 inches by a row of Lembert's sutures; second, the peritoneum and muscular coat were incised for an inch and a half, separated from the mucous membrane for a third of an inch all round the opening and sewn together with interrupted sutures; third, the stomach and jejunum were opened by dividing the mucous membrane, which was sewn together all round with interrupted sutures tied on the mucous surface; fourth, the muscular and peritoneal coats were united above; and, finally, the serous. The result was a very strong and safe junction. The last operation done in this way lasted 50 minutes, and was followed by little shock. Before the operation, the patient now shown was constantly sick and dying with an enormously dilated stomach. He can now consume beer and cheese, and is quite comfortable on any simple diet. He was a good example of the success of the excellent operation of gastro-enterostomy.

The PRESIDENT congratulated Mr. Lockwood on the success of his intervention, sufficient time having elapsed since the operation to fully test the results.

Mr. BATTLE asked how soon after the operation the patient had been able to take food by the stomach. The case showed the great value of this operation in the relief of patients who were suffering from symptoms pointing to pyloric obstruction ; in fact, he thought it was one of the most successful he had yet seen. He mentioned a case he had recently treated in private which was in some respects a great contrast. The patient was a young man only 30 years of age with symptoms of pyloric obstruction, more or less vague, for five weeks. They commenced quite suddenly, and beyond the fact that the man had vomited once in 24 hours and was emaciating very rapidly, there was no evidence of malignant growth as the cause of the symptoms until a week before he saw the man, when a tumour was found. Not more than six weeks after the commencement of the symptoms it was considered advisable to open the abdomen, when they found not only the greatly dilated stomach (which he was aware of beforehand, having withdrawn from it as much as five pints of fluid at a time) but extensive secondary growth of the glands as well as multiple growths in the peritoneum. The method he had adopted by way of treatment was to use Senn's bone plates with Lembert's sutures by way of additional security. On the following day he commenced to give the patient food by the stomach and he made a very rapid recovery from the operation, leaving the surgical home within a fortnight. The amount of shock was very slight, and by the aid of the bone plates he had been able materially to shorten the duration of the operation. Lembert's suture made the operation last half an hour, but with bone plates alone he had successfully done similar operations in 20 minutes. The patient obtained complete relief from all his symptoms and had since put on flesh.

## TWO CASES.

By GEORGE R. TURNER, F.R.C.S. Eng.

### (1) *Deformity of Lower Jaw.*

THE deformity is bilateral and affects chiefly the horizontal part of the lower jaw which is very ill-developed, so that the patient is considerably overhung. The vertical ramus of the jaw projects lower than the horizontal, so that there is a considerable prominence at the angle. The patient was born after a natural labour, and no instruments were used. He is said by his father to have had a natural lower jaw until he was 2 years old when he had measles, after which there was an arrest of development. The primary teeth were natural, and the second are apparently or have been all developed though separated from each other by larger gaps than usual. The hard palate is highly arched. There is no ankylosis of the temporo-maxillary joint, but he can open his mouth to a very limited extent and cannot protrude his

tongue. He has to live on milk and very soft food. He is perfectly intelligent, but is short in stature with a small head.*

Mr. Bruce Clarke said he was much interested in this case. He had never seen a case of the kind which was bilateral, but he had seen three or four in which there was a deformity of one half of the jaw exactly corresponding to the condition in this patient on both sides. In one of the hospital cases under his care the tongue used to fall back in the child's throat, nearly suffocating him. At length it became necessary to perform tracheotomy, the child wearing the tube permanently in order to avert the risk of suffocation while asleep. It had appeared to him that the deformity in that case was increasing. There was much the same history in all the cases he had seen, the deformity appearing to have come on at 2 or 3 years of age. He had taken considerable trouble to ascertain whether this was really the case, and he had satisfied himself that it was so. He could never get any history of its having been noticed at birth. He did not recollect whether in any of these cases it had come on after any definite illness. As to the tempero-maxillary articulation it was not as freely movable as in the author's case. He had no explanation to offer as to causation, he having been quite unable to make out that it was due to any nervous lesion or growth in connection with the inferior dental nerve leading to atrophy.

The President asked whether anæsthetists in such a case would feel that there was increased risk in giving an anæsthetic.

Mr. Bruce Clarke added that in the particular case to which he had referred the child was given an anæsthetic. He was got under with considerable difficulty, but ultimately came out of it very satisfactorily.

Mr. Turner, in reply, said the boy first came complaining of some slight difficulty of breathing through the nose, but he felt disinclined to give an anæsthetic thinking it would be dangerous to perform any operation in which blood would be likely to go to the back of the throat.

### (2) *Dislocation of Left Hip Joint into Obturator Foramen.*

Mr. Turner showed a man who had dislocated his hip at sea and was not treated till eight weeks later. Attempts at reduction were then made, but unsuccessfully. Three months after the accident he was admitted to the Seamen's Hospital, Greenwich. On February 18th, 1896, under ether, an incision was made, and the head of the bone, found to the inner side of the obturator foramen, was excised. The condition of the patient after the operation was satisfactory, and he was now able to walk about all day without pain or fatigue. The leg was now quite straight with the body, and there was practically no eversion when the patient was examined lying down, though he throws the foot outwards a little when walking. There was a little over 2 inches of shortening, the injured leg being from sup. ant. iliac spine to

* This patient died suddenly about three months after he was shown at the Medical Society; no *post-mortem* could be obtained.

internal malleolus $34\frac{1}{2}$ inches, and the right leg just over $36\frac{1}{2}$ inches.

Mr. Spencer Watson asked for details of the procedure, and asked the author whether he had used William Adams's saw for dividing the neck of the bone. He mentioned that when surgeon to the Great Northern Hospital he had found it of great advantage to use Ferguson's lion forceps as a means of everting the head of the bone from its acquired socket.

Mr. Turner, in reply, said he had cut down on the head of the bone, and on reaching it he applied a large chisel of the sort used for Macewen's operation for genu valgum. This he had hammered through the bone, removing the loosened head by the aid of lion forceps.

## CASE OF LYMPHADENOMA.

By F. de Havilland Hall, M.D., F.R.C.P.

S. W. M., aged 21 years, a bank clerk, consulted Dr. Hall on January 24th, 1894. He stated that he was quite well a year previously. For the last eight or nine months he has suffered from indisposition for exertion, and has had a "dreadful cough," but there has been no expectoration, no hæmoptysis, no night sweats. He has lost nearly a stone in weight during the last nine months. His previous health had been good.

Nothing very definite was found on examination except that at the left apex the percussion note was impaired anteriorly and posteriorly, and the respiration was of the cogged-wheel type—there were no added sounds. The larynx and other organs were found normal. In view of the fact that the patient's mother had died of phthisis, the patient was advised to leave London, and was ordered an emulsion of cod-liver oil and hypophosphites, together with the ammonio-citrate of iron and liquor arsenicalis.

He was not seen again until March 8th, 1895, when he was found to have gained $1\frac{3}{4}$ lbs. in weight. He stated that from April to November he had been at the seaside, and that he had enjoyed good health since his last visit. Great enlargement of the cervical glands and of the gland in the supra-clavicular region on the right side was found; the glands on the left side were also enlarged but to a less extent, and there was an enlarged gland in the left axilla. The right chest was quite healthy; at the apex of the left chest there was some bulging, with dulness down to

the third rib and absent breath sounds over the dull area. Full doses of liquor arsenicalis were ordered.

On June 10th, 1895, the following note was made: "There is a distinct diminution in the size of the glands in the right supra-clavicular and cervical regions; the condition of the chest seems unaltered." The patient had gained slightly in weight and seemed better." Liquor arsenicalis in gradually increasing doses up to ℥xv three times a day was ordered.

The patient was next seen on May 2nd, 1896. He had lost 8 lbs. in weight since last visit. There was dulness over the base of the left chest with deficient entry of air. The glands were about the same size as when last seen, there was a mass of enlarged glands over the upper part of the sternum. The spleen was just palpable. The patient was much pigmented.

On November 7th, pulse 120; temperature, 98·6°. Dulness all over left lung, with almost entire absence of respiratory murmur. Great increase in size in the previously enlarged glands. A large mass in the left interscapular region. Spleen palpable. Liver not enlarged. Œdema of legs. Urine, sp. gr. 1025, acid; urates; no albumen; no sugar. Red corpuscles run into rouleaux; good colour; slight increase in number of white corpuscles.

Dr. de Havilland Hall brought the case forward on the following grounds:—

1. The difficulty of making a diagnosis when the patient was first seen. On looking back it is quite easy to explain the symptoms: the dulness at the left apex was clearly due to the glandular swelling having commenced in the mediastinum. The "dreadful cough" was probably the result of pressure, and the general failure of health was another indication that the disease had commenced in the internal glands. The death of the patient's mother from phthisis, and the fact that patient's brother had tubercular disease of the testis, were calculated to lead one astray, and to cause the lung conditions to be regarded as the result of tubercular deposit.

2. The comparatively slow progress of the case, and the fact that at one time the patient gained weight and improved in general health while taking arsenic.

3. The marked pigmentations. Is this arsenical, or is it due to the solar plexus and adrenals being involved in a mass of enlarged abdominal glands? Dr. Hall was of opinion that the pigmentation was distinctly of an arsenical type.

4. The distribution of the enlarged glands. The mass over the upper part of the sternum occupies an unusual situation.

5. How much of the dulness over the left chest is due to lymphadenomatous growth, and how much to effusion into the pleural cavity.

Dr. Outterson Wood pointed out that in pigmentation dependent on arsenic the intensity of the discoloration varied considerably from day to day without apparent cause. He asked the author whether anything of this kind had been noticed.

Dr. Charles W. Chapman related a case of lymphadenoma under Sir W. Jenner's care, to which, in the latter's absence, he was called on account of sudden and increasing dyspnœa. In addition to general glandular enlargement the right chest was found to be full of fluid, a condition which had not been noted by Sir William in his examination the previous day. At a subsequent consultation it was decided to tap the chest, which was done in the ordinary way; as only ℥ij of fluid was withdrawn an abdominal trocar was inserted with a similar result. The patient died the following day. At a *post-mortem* made in Sir William's presence the right lung was collapsed and the pleural cavity filled with fluid; the trocar perforations could be seen. There were masses of enlarged glands, which not only pressed upon the blood vessels, but completely occluded the bronchus. The negative result of the tapping was now explained—the physical conditions being similar to those of a cask without a vent-hole, no air could enter the lung to inflate it, therefore no fluid could be withdrawn from the pleural cavity.

Dr. Hall, in reply, said he had noticed the change in intensity from day to day in another case of arsenical pigmentation without obvious reason, so marked indeed was the variation that the patient noticed it herself. He was debating with himself the propriety of seeing whether there was any fluid in the chest.

## CASE OF FRAGILITAS OSSIUM.

By Clinton T. Dent, F.R.C.S.

Mr. Dent showed a case of fragilitas ossium in a man aged 29 years.

*Previous History.*—When the patient was born there was no deformity and he was perfectly healthy; at four months old he fractured the right femur whilst being nursed. Was never able to walk, but went about on crutches as soon as he could. Subsequently he fractured his limbs several times from falling down. The tibæ together have been fractured 18 times; right femur, once; left femur, twice (there was a spontaneous fracture during the night of one femur); left arm, four times; left clavicle, twice;

but the bones of the right arm are sound. Has lateral curvature. Had whooping cough and scarlet fever.

*Family History.*—Cousin had lateral curvature; another cousin same condition as himself, who died; mother and father healthy; sister, curvature of spine; cousin with cleft palate.

*Food in Childhood.*—Fed principally on *rice* and *milk;* was fed by the breast till he was 4 years old.

*Present Condition.*—He is pale and thin; whole skeleton much deformed; during the last three years has become deaf—can hear scarcely at all on the right side; height about 3 feet; bones remarkably curved and flattened. Intelligent, and brain seems well developed; can read and write. Eyesight very good; rather a large head.

*Urine.*—Reaction. Acid; sp. gr. 1012; colour, pale and clear; no albumen; no sugar; much phosphatic deposit, at times forming an almost mortary sediment.

Mr. Dent showed some excellent skiagraphs of the various bones (*see* illustrations).

Mr. Spencer Watson called attention to the fact that the patient had for four years been brought up on his mother's milk alone, and he suggested that this might well have influenced the nutrition of the bones. He pointed out that possibly the case might be related to rickets. He asked whether rickets was not sometimes due to malnutrition of the same kind.

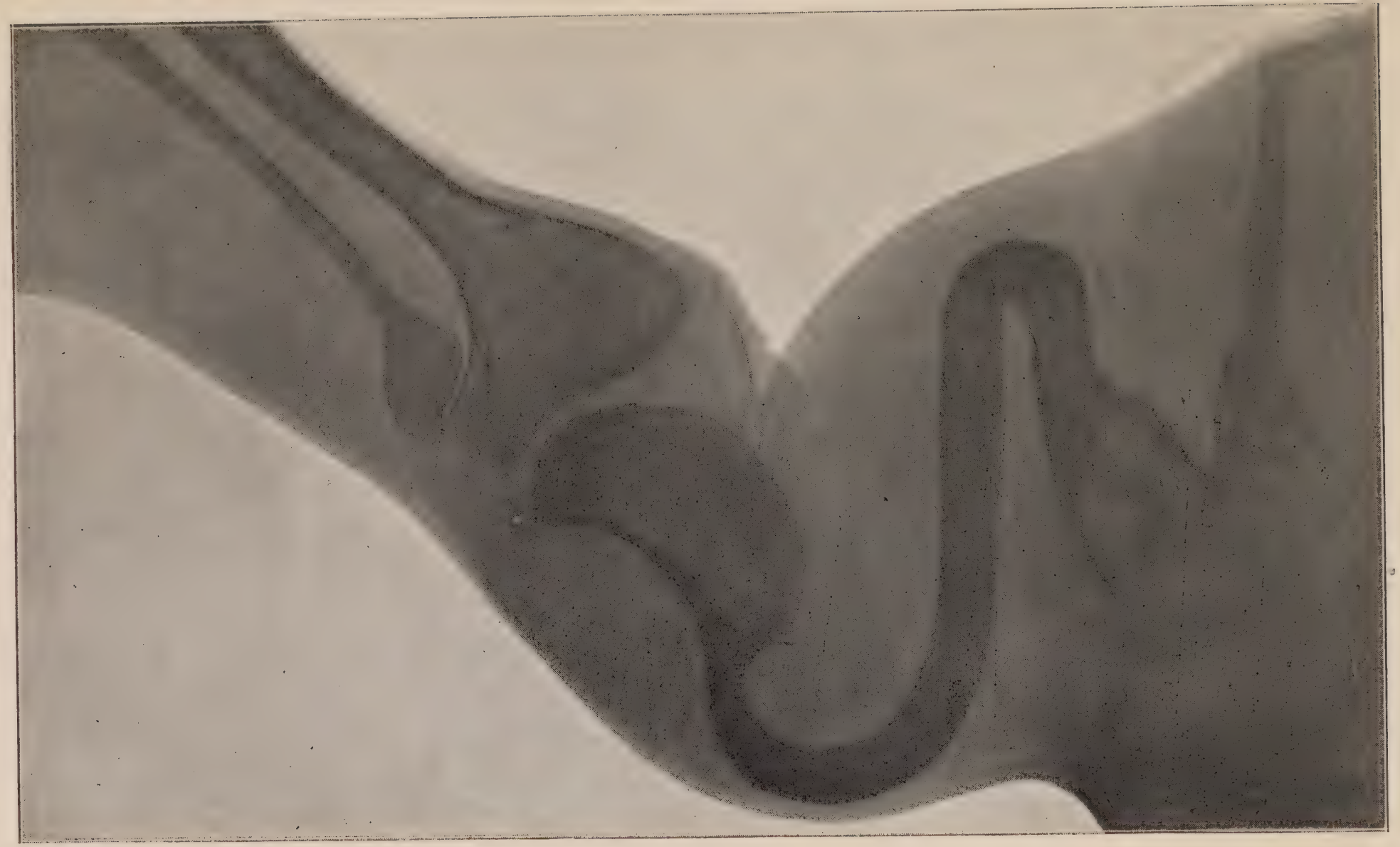
Dr. Outterson Wood suggested that some at any rate of the skiagraphs should be preserved for their 'Transactions.' He remarked that this peculiar fragility of the bones resembled what was met with in the subjects of nervous disease, the bones often undergoing fracture without the slightest violence. He referred to the case of a man who died without the cause being known. *Post-mortem* he was found to have double fracture of the lower jaw with six broken ribs on the right and five on the left side, yet before death there had been no complaint or suspicion of violence. It was met with in the young and the old alike.

Dr. Ewart asked for some information as to the mental aspect of the case, not so much in respect of the patient's reasoning powers as in respect of the general attitude of the cerebral nervous system, the habits of thought, the disposition, and the feelings, and much else that would interest them in a subject of this kind—so different from ordinary humanity.

Mr. Dent, in reply, admitted that the nursing might have some effect, but called their attention to the fact that the first fracture (of the femur) occurred at four months of age. He argued that it could not be inferred that because rickets was often largely influenced by errors of diet that, therefore, an affection of the bones in infancy was necessarily the result of malnutrition. There was no history of insanity in the patient's family. He alluded to the fact that in mollites ossium patients often experienced preliminary pain in the bone and could even point to a spot where the next fracture would take place.

*C. T. Dent, Ph.*] MOLLITIES AND FRAGILITAS OSSIUM (Mr. Dent's case).

(*To face p.* 340.



*H. L. Tyson Wolff, Ph.*]

MOLLITIES AND FRAGILITAS OSSIUM (Mr. Dent's case).
Skiagraph of Left Femur and Leg.

(*To face p.* 340.)

## TWO CASES OF PSEUDO-HYPERTROPHIC PARALYSIS.

By Walter Carr, M.D. Lond.

Dr. Carr showed two cases of pseudo-hypertrophic paralysis, one in an early, the other in a very late stage of the disease. The first case was that of a girl, aged 5 years, in whom weakness and difficulty in getting up stairs had been noticed for about a year; she was the youngest of six children, all the others were quite well, and no family history of the disease could be obtained. She showed the typical difficulty in getting up, together with waddling gait, marked lordosis, and loss of knee-jerks. The muscles of the calf were extremely large and hard, and the vasti and infraspinati were hypertrophied. No muscles showed marked wasting.

The second case was that of a boy, aged 16 years, who had a younger brother also suffering from the same disease. Symptoms had come on gradually for six years; last winter the patient having got too weak to walk, contractures of the legs had developed, leading to talipes equinus and to such extreme flexion of the hips and knees that he was quite unable to stand. Nearly all the muscles of the trunk and limbs showed marked wasting and weakness, notably the intrinsic muscles of the hands, the biceps, and most of the scapular muscles, and the dorsal muscles, whilst those forming the axillary folds had almost completely disappeared. The muscles of the calf were relatively large and hard, as were, to a very slight degree, the deltoids and infraspinati. The muscles of the forearm were not affected. The knee-jerks were absent. All muscles reacted readily to the faradaic current.

## CASE OF REMOVAL OF PELVIC TUMOUR.

By D. H. Goodsall, F.R.C.S.

Mr. Goodsall showed a man, aged 54 years, in whom, in 1890, a tumour was found growing from the anterior surface of the sacrum. Nine months later a left inguinal colotomy was performed to relieve the consequent obstruction. In 1894 the patient began to have pain in the right iliac fossa, and in 1895 he began

to have pain in the right hip. He lost weight, and in May, 1896, was unfit for work. In June, 1896, an operation was undertaken for the removal of the tumour. The coccyx was first removed, the sacrum was divided in the mid-line to the level of the third sacral foramina, and here it was divided transversely, the two sides being turned outwards. It was found necessary to lay open the rectum for 3 inches, and the tumour having been separated from its capsule, was removed with a pair of straight midwifery forceps. The patient left the hospital on the 46th day after the operation, and was able to follow his usual occupation. The tumour weighed 12 ounces and showed the structure of a fibro-sarcoma.

## CASE OF DEFORMITY AFTER INJURY TO THE HIP.

By William H. Battle, F.R.C.S.

Mr. Battle showed a boy, aged 6 years, who was sent to him with an indefinite account of two or three serious injuries to the hip, and it was considered that there was a resulting dislocation. The boy was lame and had a shortening of $2\frac{1}{2}$ inches in the left leg. Free and painless movement was permitted at the hip, and the head of the bone could not be felt. Below the hip there was a projection in front of the femur which was probably caused by a former fracture of the bone followed by faulty union. A skiagraph was shown which demonstrated the fact that there had been two fractures, one about the great trochanter and the other about 4 inches below, at the point where the projection of bone could most easily be felt. Mr. Battle proposed to perform osteotomy of the femur at the point of lower fracture, for it was evident that faulty union at this place had caused the shortening and lameness from which the patient suffered.

*February 8th*, 1897.

## CASE OF WITHERING SARCOMA OF THE SCALP.

By Morgan Dockrell, M.D.

Dr. Morgan Dockrell showed a case of withering sarcoma of the scalp of 15 years' duration. The case had been shown by the late Mr. Morrant Baker nine years ago, and fully reported in the St. Bartholomew's Hospital Reports. It had remained quiescent until a few months ago, when it became more active, and acquired a condition of mycosis fungoides. It was now proposed to treat it by inoculation with Coley's Fluid.

Mr. G. R. Turner asked whether search had been made for the ray fungus, and, if so, with what result. He personally was opposed to the use of Coley's Fluid in such a case, as the disease was so diffuse, and had hitherto run so chronic a course.

## TWO CASES.

By Noble Smith, F.R.C.S. Ed.

(1) *Spastic Contraction of a Mutilated Hand; Trophic Ulcer on the Posterior Surface, with extreme Pain in the whole Hand, relieved by Tenotomy and Neurotomy.*

Mary F., age 45 years, admitted to the City Orthopœdic Hospital on July 13th, 1896.

The patient gave the following history of her case:—

Ten years ago, while alighting from a tram, she was thrown off under a passing vehicle, and her left hand was crushed by one of the wheels. She was taken to the Royal Free Hospital, where the hand was dressed, and where, a few weeks later, it was found necessary to amputate the end of the second finger. Two years later, finding that her hand was becoming contracted and was very painful, she went to the Mildmay Hospital, where the end of the little finger was amputated. During the next few years she underwent many operations, apparently for the removal of diseased bone; but the hand gradually contracted more and more, the pain became very severe and the hand absolutely useless, so

that amputation was proposed, at one of the London hospitals, as the only effective remedy. The patient then came to this hospital. When admitted she was in an emaciated condition, and was suffering extreme pain in the affected part. There was a trophic ulcer on the back of the hand discharging freely. The hand was so tightly clenched that it was impossible to separate the mutilated thumb from the fingers, or the fingers from the palm of the hand, and the skin had a glossy appearance.

*Operation.*—On July 16th I performed the following operation:—A transverse incision was made across the front of the wrist, and the tendons of the palmaris longus and flexor sublimis muscles and the ulnar and median nerves were divided. The median nerve was much enlarged.

After the tendons were divided it was possible to extend the fingers into a fairly good position; but bearing in mind the extreme sensibility of the nerves supplying the hand, as evidenced by the great pain and the glossy condition of the skin, I feared that tenotomy alone would not remove the suffering; and realising that, unless this were relieved, the only other resource was amputation, I felt emboldened to divide the nerves, in spite of the possibility of serious interruption to the nutrition of the hand by cutting off so large an extent of nerve-supply. The result was very satisfactory. The patient was immediately relieved from much of her pain, and in a few days was quite free from suffering, the wound healing up rapidly. A few weeks later I noted that the patient was free from pain; the trophic ulcer was healing; the patient could move the fingers slightly, and could grasp a spoon or other article between her stump of the thumb and her fingers. Since that period the ulcer has healed up entirely, and, although there is considerable stiffness in the fingers, the fact of the patient being able to grasp renders the hand a very useful one. On January 11th I divided a tense band of fascia, which passed from the base of the thumb towards the base of the middle finger, because this part was contracting. I also broke down some of the stiff finger-joints. As regards numbness caused by the neurotomy, the patient made no complaint except upon inquiry about a fortnight after the operation. The loss of the pain was such a relief to her that the numbness was doubtless felt as a benefit. The progress was so satisfactory that it was not until November—that is, four months after operation—that I tested the sensation

of the skin, when I found it very good. There was a small area of numbness in the palm at the base of the middle and ring fingers, but not elsewhere, and the two points of a pair of scissors could be severely detected in the other parts.

This operation was undertaken as a sort of forlorn hope. My reasons for adopting it were as follows:—The symptoms that were present, especially the severe pain; the trophic ulcer and the glossy skin were symptoms which so often follow injury to the median and ulnar nerves. I thought it most probable that these nerves had been damaged and were in a state of irritation without being severed, and although the theory that the neutrition is interfered with, in nerve injury, by irritation of the trophic nerve fibres has been much discountenanced in late years, yet it seems possible that in some cases this theory may apply. This view was strongly supported by Charcot and also by Wier Mitchell. The latter, however, abandoned the idea; and Bowlby, in his excellent work upon 'Injuries and Diseases of Nerves,' gives good reasons in opposition to this theory. However, I saw no other way of relieving the symptoms than by cutting off the nerve-supply, and the result has been so far satisfactory. I am afraid the joints of the fingers are becoming more stiff, possibly as a result of the neurotomy; but, seeing that the innervation has been restored, it is possible that this may be but a temporary effect. The grasping power between the thumb and fingers is excellent.

(2) *Diffuse Lipoma and Congenital Deformity of Phalanges of the Index Finger.*

Emma P., age 23, gave the following history of her case:—

At the age of 15 months she fell down some steps, and when picked up it was found that the thumb and index finger of her right hand had "doubled up." Ten years later, finding that the finger was becoming crooked and abnormally large, the patient was taken to the hospital, where it was said that amputation was the only remedy. The patient did not obtain any other advice until she came to this hospital a year ago as an out-patient. The thumb and index finger were then found to be much enlarged, and the distal end of the index finger was turned in the ulnar direction. The amount of deformity is shown in the skiagraph. This patient was a waitress, and she became unable to do her work properly;

especially, she could not cut up bread and butter, which was one of her duties.

The exact nature of the enlargement was not clear, but it so closely simulated the appearance of congenital hypertrophy that I thought the bones were probably enlarged, and that there was an excess of fatty tissue.

Mr. Sydney Rowland took a skiagraph of the hand, which showed that the bones were normal as to size, and that the enlargement was entirely due to soft tissue. The Röntgen rays also showed the exact shape of the last phalangeal joint of the index finger, the deformity being produced by irregularity in the shape of both of the bones forming that joint.

I operated at first for the lipoma, which I found diffused between the tendons in all directions.

I was able to pull out long threads of the fatty nodules, which probably come under the denomination of *Lipoma arborescens* of T. Müller.

Billroth refers to the analogy between this form of lipoma and the proliferation of fat in the processes of the peritoneum of the large intestine (the appendices epiploicæ) and other serous membranes. This variety, says Billroth, is extraordinarily rare.

Bland-Sutton states that diffuse lipomata do not admit of removal, and certainly, in this case, to have removed all the redundant fat would have been a tedious procedure, but the result of removing a great portion of it was very satisfactory.

The immediate diminution in size enabled the patient to use her hand with much less inconvenience, and in the course of some weeks the affected parts became still smaller.

*The Deformed Joint.*—It was now found that the bend at the end of the index finger was a source of great inconvenience, as it would catch beneath the middle finger. I therefore cut down upon the radial side of the finger, and cut the second phalanx transversely, with bone forceps, nearly to the ulnar border. I then forcibly broke the remaining piece of bone, bringing the finger into a straight line.

There remains a very slight inclination of the terminal phalanx towards the middle finger, but this gives the patient no inconvenience. The skiagraph shows the hand before the operation, and the photograph depicts its appearance at the present time. The hand is now perfectly useful, but, if necessary, more of the fatty tissue will be removed by further operation.

# CASE OF FRACTURE OF THE ANTERIOR FOSSA FOLLOWED BY HEMIANOPSIA.

By John H. Morgan, M.A. Oxon., F.R.C.S. Eng.

The patient, aged 26, was admitted into Charing Cross Hospital on October 22nd, 1896, after falling from a ladder whilst cleaning windows. He was found to be suffering from severe concussion. The eyes were closed, the breathing was rapid, the respirations were shallow, the pulse was 120, feeble and frequent. On recovering from the acute shock he vomited about one pint or more of blood. He was then able to give his name and address and state where the accident occurred, but he remembered nothing about it. On examination there was great ecchymosis and swelling of the eyelids on both sides; there was no bleeding from the ears, but there was coagulated blood in the nostrils and a transverse fracture of the left patella. Two days later it became possible to examine the eye, and it was then seen that a subconjunctival hæmorrhage occupied the whole of the temporal side of the right globe, passing to the back. Both pupils were equal and reacted to light. On October 31st the patient showed all the symptoms of cerebral irritation. There were marked subsultus, some pain in the right eye, and incontinence of urine. He wandered slightly, with intervals of consciousness, and the fingers constantly plucked at the bedclothes. The temperature varied between 99·4° and 101·6° F. On November 3rd the temperature rose to 103·2°; he was very drowsy, but answered questions when roused. The tongue was very loaded and the breath extremely foul. The bowels were opened by purgatives and enemata. On the 6th the temperature was still high (101·6°), the tongue was still coated, and the breath very foul. He was very drowsy, but answered questions quite rationally. When dozing off his breathing became irregular and stertorous. There was some twitching of the muscles of the right angle of the mouth, but no movement of the left; the left nasal fold was less marked than the right, and he could not close his left eye. Subconjunctival hæmorrhage was still present, the pupils were equal and reacted to light, and there was slight conjugate deviation to the left side. The tongue was brown and dry, there were sordes on the teeth, and the breath was excessively offensive. The pulse was very irregular—one

minute numbering 70 and the next 100, full and fairly strong. On the 9th the patient was better, the signs of facial paralysis had almost passed away, but when asleep there was still some slight twitching of the facial muscles of the right side. The deviation of the eyes had passed off. On the following day, the 10th, the temperature rose to 101·8° and the pulse to 120, small, weak, and irregular; the breath was still extremely foul, and the respirations were quiet. During the next four days the patient continued in much the same condition, wandering slightly in his talk, but answering questions. All facial paralysis had disappeared, but his speech was indistinct and guttural. On the 17th the temperature suddenly rose to 102·4° and the pulse to 140, small and weak. Swelling and œdema appeared over both eyelids and spread down to the cheeks, and a limited area of erysipelas attacked these parts, which lasted for 18 days, during which time he was isolated. On returning to the ward when convalescent from this attack it was observed that a small fluctuating swelling existed over the orbital arch and just to the right of the metopic suture. This swelling was bounded by hard, elevated edges of bone, and in the centre was a fluctuating area, emphysematous, but showing slight pulsation synchronous with that of the temporal artery. The tongue remained very loaded and the breath continued to be very foul. At times the urine and fæces were passed unconsciously. On ophthalmoscopic examination of the eyes on December 8th the discs were found to be very white, with very sharply defined edges, but no white streaks were noticed around the vessels, which exhibited no pulsation. The emphysematous crackling in the small swelling lasted from the 8th to the 14th, when it disappeared, leaving a small hard, bony elevation, and there also appeared another small boss of callus under the inner third of the right orbital arch. On the 14th further examination of the fundus revealed that there were loss of vision in both temporal fields, paralysis of the nasal halves of both retinæ, and temporal hemianopsia. Dr. Mott, who kindly examined the patient, observed that he had seen the same condition in a case of acromegaly with enlargement of the pituitary body. This observation was of extreme interest when the probable line of fracture came to be considered. Dr. Mott found that the patient could not read even three large letters in succession easily and that he had considerable loss of memory. He

found the discs very white and the vessels normal in size but rather curved, but he could observe no retinal changes. Very probably there was early optic atrophy. Dr. Mott added: "No doubt the morbid process is situated at the chiasma, damaging chiefly its central portion and affecting thus the decussating fibres from the nasal half of each retina. I should think, however, it has involved other fibres from the central portion as well." These conditions remained the same until January 22nd, 1897, when the patient was sent to the Limpsfield Convalescent Home, his general health having much improved.

The line of the fracture in this case can only be indefinitely surmised by the course of subsequent events. That the base of the skull was fractured in the anterior fossa was indicated by the ecchymosis of the eyelids with the subconjunctival hæmorrhage; and that there was rupture of the mucous membrane, either in the nose or in the upper part of the pharynx, was proved by the large amount of blood which was vomited soon after the patient's admission. It was probably through this lesion that the septic material spread which gave rise to the subsequent erysipelas, and the inflammatory products may have been the causes of morbid effects upon the chiasma and even the pituitary body. The emphysema noticed in the swelling over the frontal sinus was probably the result of decomposition, since the patient was unable by any effort to force air into this swelling. Subsequent inquiry elicited the fact that the patient had as a child been subject to fits, but had not suffered from any attacks since early infancy; his memory had never been good, and on account of the fits he had never learned to read or write. His eyesight seems to have been defective previously to the accident, but it has been very much worse since, and his memory is now so feeble that he cannot remember a name for two minutes together. The patient has been placed under the observation of Dr. Mott, who will watch and report any further developments.

The PRESIDENT asked whether any improvement had been noted in the condition of vision since the defect was first noticed; such improvement, if present, would facilitate the diagnosis of the cause of the impairment of vision.

Mr. MORGAN said that the progress of such a case was necessarily slow. Such change as they had been enabled to observe gave one the idea that the subsequent history of the case was not likely to be favourable.

Mr. PEEKE RICHARDS asked whether the olfactory function had suffered.

Mr. MORGAN said the patient had noticed no difference in this respect.

## CASE OF UNUSUAL FRACTURE OF HUMERUS.

By F. C. Wallis, B.A. Camb., F.R.C.S. Eng.

T. S., aged 16, a naval cadet, slipped from a gangway on his training ship and fell 30 feet, sustaining a longitudinal fracture of the great tuberosity of the humerus, just below the insertion of the muscles. This portion of bone sprang away from the shaft, but was not separated from it, and tore through the deltoid muscle, becoming impinged under the skin. It was found necessary to divide the skin, and although attempts were made to pin the separated portion to the main bone, it was not possible to do it, and ultimately the portion of bone was removed. The joint movements are all very good, but the actions of complete circumduction and raising the arm above the head are still not quite free.

## CASE OF EXCISION OF THE HEAD OF THE RADIUS FOR OLD UNREDUCED DISLOCATION.

By George R. Turner, F.R.C.S. Eng.

On July 31st, 1896, the patient, a soldier stationed at Shorncliffe, was driving a water-barrel cart when the horse bolted and he was thrown off. There was considerable swelling of the left arm, treated by splints, which he wore two months. On removing these there was found some displacement of fractured ulna, and irregular swelling of doubtful nature in front of elbow. He was unable to get his hand to his mouth. A skiagram showed that there was a dislocation of the radius forwards, and a fracture of the ulna just above its centre. The man was sent to St. George's Hospital just before Christmas—five months after the accident. On December 21st the head of the radius was excised and the wound healed by first intention. Movement was immediately much improved and he could now reach his mouth with ease, pronation and supination very nearly natural.

Mr. Wallis asked whether any other treatment apart from surgical interference had been tried in this case, and, if so, of what nature.

Mr. Waterhouse said he had treated such a case in a child of 8, who presented very marked forward dislocation of the radius. He had tried without open incision to reduce the displacement but had failed, so he cut

down on the head of the radius and by means of a periosteum elevator, introduced between the radius and the humerus, he managed to force the head of the bone into position without much difficulty. He did not know whether this would be possible in an adult. The result was so satisfactory that he was led to ask if the author had ever tried this plan in an adult, and, if so, with what result.

Mr. TURNER, in reply, explained that when this patient was under an anæsthetic he had made an attempt to remedy the displacement, but it could not be done : first, because it was more than five months since the accident ; and, secondly, because there was not only the displacement of the radius, but a badly united fracture of the ulna. Possibly, if he had seen the case earlier, it might have been practicable. In a similar case, however, he thought he would act in the same way, and he pointed out that if the head were replaced in its old position it did not follow that the patient would have a more useful joint ; in fact, he could recall several cases proving the contrary.

## TWO CASES.

By ROBERT MAGUIRE, M.D., F.R.C.P. Lond.

### (1) *Malignant Disease of the Lung.*

THE patient, a man aged 52 years, complained of shortness of breath and cough, the first complaint being, however, difficulty in swallowing. There was dulness over the upper part of the left lung, with loud bronchial breathing. Dr. Maguire thought that infiltration of the lung by new growth had taken place along the bronchi. The œsophagus allowed a bougie to pass easily.

### (2) *Congenital Heart Disease.*

Dr. Maguire showed a second case of a man, aged 22 years, with congenital heart disease. He had had rheumatic fever three times, but previous to these attacks, and when only 7 months old, he had been seen at Brompton Hospital by Dr. Pollock, and was then said to have had heart disease.

## SKIAGRAM OF A KNEE JOINT AFTER SUTURE OF THE PATELLA.

By F. SWINFORD EDWARDS, F.R.C.S. Eng.

MR. SWINFORD EDWARDS showed a skiagram of a knee joint after suture of the patella from a man aged 30 years, in whom he had wired the patella on the ninth day after the accident.

Mr. Turner, having examined the skiagram, asked the author whether, in dealing with the knot in the wire, he was in the habit of making an incision in the aponeurosis and hammering the knot down flat. That, he added, was his own practice.

Mr. Edwards said he invariably made a longitudinal incision through the aponeurosis over the patella and sank the wire into that; he then employed deep sutures to bring that together before suturing the skin-flap. He bent the wire and hammered it down on the bone as described by Mr. Turner.

## CASES TREATED BY OXYGEN GAS.

By George Stoker, M.R.C.P.I., M.R.C.S. Eng.

### (1) *Chronic Ulcers of the Leg.*

Mrs. C., aged 54, was admitted into the Oxygen Home on June 27th, 1896, suffering from extensive ulceration in the left leg. The ulcers were situated on the inside and the outside of the leg; that on the inside was a single ulcer measuring $8\frac{1}{2}$ inches by $6\frac{1}{2}$ inches. Those on the outside were eight in number. The previous history was as follows:—Eighteen years previously the ulcer on the inner side of the leg began by a "little lump," from which the skin peeled off. Other ulcers formed; as many as 10 existed at the same time. In a short time these healed up, but soon broke down again, and the big one began to form and increased in size till it assumed its present size, *i.e.*, $8\frac{1}{2}$ inches by $6\frac{1}{2}$ inches. She never laid up, but received a variety of treatment at the out-patient departments of several hospitals. During all these years she suffered great pain, and said "she never had a single night's complete rest, being obliged to wet the leg every two hours with water." There was a very offensive discharge.

She was treated with equal parts of pure oxygen and purified air, and the leg was washed twice daily with boiled water.

On November 15th all the ulcers on the outer side of the leg were quite healed, but the progress of the ulcer on the inner side was very slow.

Within the last few weeks the ulcer has been inoculated with staphylococci, and remarkable improvement has taken place. It now measures $2\frac{1}{2}$ inches by $3\frac{1}{2}$ inches.

It must be remembered that in this case one ulcer had existed for 18 years and the other for $2\frac{1}{2}$ years.

Bacteriological Report by George Stoker and George Dineen.

On June 27th a cultivation was taken on Agar-Agar, and was incubated for 48 hours at 37° C. On examination it was found to contain—

1. Putrefactive and other bacteria.
2. Streptococci.
3. Staphylococcus pyogenes albus.

The cultivation smelt very badly.

On July 4th a cultivation was taken in the same way, and was found to contain—

1. Staphylococcus pyogenes albus and aureus.
2. A few putrefactive bacteria.

Cultivation had a slight smell.

November 10th.—Owing to the great difference in the rate of healing, a separate examination was made of the ulcers on either side. The result was as follows :—

1. Outside, healing rapidly, showed only staphylococcus pyogenes aureus.
2. Inside, healing very slowly—
   (1) Bacillus subtilis.
   (2) Sarcinæ.
   (3) Staphylococcus pyogenes albus.

The last cultivation, taken on February 3rd, 1897, shows :—

1. Staphylococcus pyogenes albus.
2. Micrococci.

### (2) *Lupus of the Nose.*

Ten years ago lupus first appeared on right alæ of nose, then quite small in extent, being about the size of a threepenny piece. It was then scraped twice within a short period and caustic was applied several times. It remained healed up for two years and again broke down, but was limited in size to the extent of a sixpenny piece. After being scraped for this the third time, it remained healed up another two years when it again broke down and spread rapidly.

On November 19th, 1896, the treatment by exposure to equal parts of pure oxygen and purified air was begun. The ulcerated

surface began to improve at once and to assume a healthy aspect, but progress was slow after the first 14 days. It was determined to scrape the surface. This was done on December 6th; the result was most gratifying, as the ulcer began rapidly to improve and was quite healed up inside four weeks. A few days after the patient accidentally rubbed the newly formed skin with a rough bath towel, and caused abrasions in two places, where the edges of the ulcer had been. The pneumatic pad of the cap pressed on these and set up some irritation, and these places were again scraped on January 20th; they were three times inoculated with "staphylococci," and completely healed in 12 days. It must be remembered that the parts affected and scraped on the first three occasions were comparatively small, whereas a very much larger surface, *i.e.*, nearly the whole surface of the nose, was affected when the case came under our care.

Bacteriological Report by George Stoker and George Dineen.

Owing to an unfortunate oversight the first cultivation was not taken till November 30th, when the patient had already been 10 days under the oxygen treatment.

November 30th.—Cultivation on Agar-Agar cubature at 37° was found to contain staphylococcus pyogenes aureus, albus, and diplococci.

December 21st.—Staphylococcus pyogenes albus and micrococci.

January 25th, 1897.—Staphylococcus aureus citrius, and a very few bacillus subtilis.

Mr. Spencer Watson observed that the results of this new method of treatment were very remarkable. The ulcer of the leg was evidently of the intractable description, and the treatment had had an obviously beneficial result. He observed that they had hitherto regarded the staphylococcus as a pathogenic organism, and it was difficult to understand why inoculation with this organism should be desirable. He pointed out that, in the lupus case, the author had scraped the growth on several occasions, so that perhaps all the credit could not be ascribed to the oxygen treatment.

Mr. Turner said he would be reluctant to say anything against the treatment, because he had seen cases in which it had done great good, cases of extensive burns for instance, but he urged that it was unfair to contrast the treatment of ulcers at the Oxygen Home with the out-patient treatment of the large hospitals, because at the home they had the rest and cleanliness which were so necessary. One of the author's patients was stated to have attended as an out-patient at St. George's Hospital. Now they all knew that if they took in bad cases of ulcers from any

cause, and kept them clean and at rest, the ulcers could almost invariably be got to heal. That had been his own experience at the Seaman's Hospital, which was a home as well as a hospital, and where patients could, if necessary, be kept even for a year or two. It did not follow, therefore, that cases cured by the oxygen treatment would not have yielded to any other treatment under similar conditions of environment.

Mr. Wallis concurred in Mr. Turner's view. He said he had 20 patients or so, who came regularly with ulcers of the leg, whom he would be glad to hand over to the author for treatment at the home. Rest and good hygienic conditions doubtless had much to do with their getting well. It was impossible to compare the condition of the author's patients with that of the average out-patient who did not keep the ulcers clean. They admitted bad cases, so bad that amputation was thought of, but in a few weeks they improved so much that, as compared with the author's cases, there was really very little difference. With regard to the lupus case, he observed that a much better plan of treatment was to remove all the diseased tissues with the knife, filling in the gap with a Thiersch graft. That was a plan he had adopted with success. He asked what scientific principles had guided the author in respect of the inoculation with staphylococcus. He asked why he first gave oxygen, and then poisoned the ulcers with this micro-organism. He would not affirm that it was not a successful method of treatment, but they had a right to expect scientific reasons for so doing.

Mr. Swinford Edwards pointed out that the author had employed three different methods of treatment: oxygen, curettage, and inoculation with staphylococci, and he asked to which of the three he attributed his results. He could not regard the lupus as cured. With regard to the ulcerated leg, he pointed out that there was still a very large ulcer, and he believed that as soon as the patient began to get about, the healed ulcer would break down, all the tissues being adherent to the bones.

Mr. Stoker, in reply, said that with regard to the effect of rest in bed on these ulcers, he observed that he had brought this particular case forward, not to demonstrate that point, but to show that in a patient with two ulcers on the same leg, one which contained staphylococci had healed in three months; while the other, in which they were not present, had remained unhealed. At Carlisle he had shown photographs of a number of patients who had been treated for months and years by rest without healing, but had healed in less time under oxygen. One of the Clinical Society cases (to which he presumed Mr. Wallis alluded), which had healed in two months, had been in bed and at rest for many months; and one of the other cases had been two months in bed at a hospital, and three weeks at a convalescent home without healing, yet it healed under the oxygen treatment in six weeks. With regard to the lupus case, he said it had been scraped on various occasions for 10 years past by an eminent dermatologist, without cure. The case had been two months under his own treatment and was now healed. He justified his inoculation with staphylococci, on the ground that he had observed that wounds under oxygen treatment with this organism healed more readily than wounds from which they were absent. As soon as these latter wounds were inoculated with staphylococci they began to improve. His view was that oxygen oxidised the toxins on which the bad bacilli fed, and, so to speak, starved them out, and as the staphylococci multiplied under oxygen, he thought they probably acted as scavengers, cleansing the surface of the wound.

*April* 12*th*, 1897.

## A NEW OPERATION FOR EXTROVERSION OF THE BLADDER.

By the President, Reginald Harrison, F.R.C.S.

The subject of the treatment I am about to describe is the boy, aged 15, now before you. He is the victim of a congenital extrophy of the bladder, and an epispadiac penis with the pelvic cleft. He first came into St. Peter's Hospital in July, 1895, for the deformity I have mentioned. There was a considerable protuberance of the posterior wall of the bladder, upon which the orifices of the ureters were distinctly visible. The exposed mucous membrane was very sensitive and readily bled upon being touched either by the hand or the clothes, and the thighs and legs were much excoriated by the constant dripping of urine from above. The patient's condition was a very miserable one and he was much emaciated on his admission to hospital. Shortly after his reception he showed signs of having contracted scarlet fever and was consequently removed to an infectious hospital. For some weeks after this his urine remained slightly albuminous.

On his re-admission, after satisfying myself that both kidneys were in good working order and the urine healthy, on January 17th, 1896, I removed the left kidney by lumbar incision. The patient recovered rapidly and completely from this preliminary operation. With the view of allowing ample time for the purpose of enabling the remaining kidney to grow and to provide for the entire urinary excretion, the patient went home for some months, occasionally returning for observation.

He was again admitted to hospital in November, 1896. His legs and thighs were still much excoriated by the constant dripping from the single ureter, and the protuding mucous membrane of the posterior wall of the bladder remained scarlet and sensitive. Having satisfied myself by repeated examinations that the excretion of urine had been effectually carried on by the solitary kidney during the period of nearly 11 months which had now elapsed since the preliminary nephrectomy, the

right ureter was transplanted on December 5th, 1896, in the following manner :—

I first passed a flexible bougie up the solitary ureter so as to serve as a guide for finding the canal as it crossed the brim of the pelvis. I then made a small incision in the right loin on the same line as if for a lumbar colotomy. By a little deep dissection, and with Mr. Fenwick's assistance, the ureter was readily found and exposed. A carbolised silk ligature was placed upon it just below where it crosses the common iliac artery, and the tube was then cut across on the kidney side of the ligature, and brought out into the loin wound. To the latter it was attached by one fine silk suture. There was very little bleeding and the whole proceeding only occupied a few minutes. The loin wound was partly closed by a suture at either end, but not so as to occlude the ureter. Before the patient left the operating room, urine was seen issuing from the transplanted ureter, so that it was at once evident our object had been attained. A pad of absorbent material over the wound completed the dressing. It was noticed that as the ureter was being transplanted retching and attempts to vomiting became continuous. Mr. Braine called my attention to this.

The patient also vomited at frequent intervals for 24 hours after the operation. This immediately ceased at the expiration of this period, when, in the course of my usual visit to the hospital, I removed the little suture which attached the divided end of the ureter to the loin-wound, and which had evidently been keeping up some tension on the former. The now disused and protruding posterior wall of the bladder was covered with lint and vaseline, and the patient was placed on a light, but nutritious diet.

For 10 days after the operation the patient's condition was in all respects most satisfactory: the discharge of urine from the loin wound being, as far as I could judge, free and normal. Then followed a series of high temperatures, which continued from December 16th to January 29th. On December 23rd the temperature was 105·3, whilst on December 24th it fell as low as 97·4. These variations continued up to January 29th, when the normal level was again maintained. No rigors were noticed, though there was sweating and occasional vomiting. At times the patient was evidently drowsy, but he seldom complained of feeling ill, and was generally in good spirits and took his food

with appetite. On January 7th he was allowed to get up on a couch, and since this date he has steadily improved in every respect.

Different causes were assigned for these variations in temperature. At first it was thought that they were due to influenza. Then it was suggested that some suppuration was going on. But the evidence was insufficient. The urine as collected from the ureter was clear, and contained only a slight trace of pus which was probably derived from the external wound. It seemed more likely that either the eliminating function of the kidney had been disturbed, or that these variable temperatures were due to changes directly connected with the absorption of the unused mucous membrane of the bladder, which was now rapidly going on. I regretted that at this stage no qualitative examination of the urine was made, which might have thrown some light upon the point.

That the boy has greatly benefited by the change in the mode of urination there can, I think, be no doubt. He is now able to maintain the erect position, and moves about comfortably, being quite free from excoriations about his thighs, legs, and loin. His general condition has also much improved. I am indebted to our house surgeon, Mr. Pardoe, for the notes of this case, as well as for the following analysis of the urine, which was made on February 27th, 1897, when the patient was convalescent. Sp. gr. 1014. Reaction neutral. No albumen. Urea 1·3 per cent. No casts nor crystals present. As he is growing he is only provided with an absorbent wool pad for the loin, which he changes every four hours and by means of which he keeps himself comfortably dry. Later on he will be fitted by Mr. Hawksley with an apparatus for collecting the urine as it escapes from the loin fistula. Hitherto, no attempt has been made to close in the bladder as this appears to be gradually undergoing a process of cicatrisation, as it ceases to be a mucous surface.

I would ask your attention to the difference in the condition of the urine trickling from the ureters in these deformities, mixed with the abundant glairy excretion of mucus from the surface of the exposed membrane of the fissured bladder, as compared with the excretion that escapes from the artificial fistula in the loin, as in the case before you. In the former instance the excretion is irritating and offensive with a strong tendency to form phosphatic

calculi upon nuclei provided by the pubic hairs, whilst in the latter these characteristics are absent, and the presence of the patient ceases to be in these respects a cause of offence to others.

Though, in this instance, the treatment I have described was undertaken solely with the object of ameliorating the patient's condition, it is possible that a similar proceeding, or some modification of it, might be utilised in connection with the treatment of other forms of urinary disease. I refer more particularly to the extirpation of the entire bladder for malignant, as well as for some advanced forms of suppurative, diseases. Cases are occasionally met with in which, if it were possible to dispense with the bladder as a receptacle for the urine, its total removal might be safely and advantageously undertaken.

As over four months have now elapsed since the completion of the operation, I have thought this a favourable opportunity for submitting to the Fellows of this Society a proceeding which in its application to this most distressing deformity is, so far as I can gather, the first recorded example of its kind.

In conclusion, I may state that I first suggested a double proceeding of this kind in the last edition of my 'Lectures on Urinary Diseases,' published in 1893. This arose partly in consequence of having seen a patient, with probably only one kidney, going about apparently with a single lumbar urinary fistula, where the urine was collected by a bag suspended to the loins, and partly because of the failure of other measures then in vogue, to afford adequate relief in this class of deformities.

Mr. J. Morgan remarked that the President had analysed the urine from both ureters and had found it normal on both sides, but he had failed to catch the reason for his performing his operation on the left side only and not on the right side as well. He congratulated the author on the result of his very striking and unusual procedure. He commented on the remarkable difference in the urine which issued from the remaining kidney, this being free from the distressing tendency to cause phosphatic and other deposits which characterised urine that accumulated on the surface of the bladder even in the absence of hairs to serve as a focus for such deposits. He saw a great number of these cases, and had to confess that his efforts to alleviate them had been singularly disappointing. He had operated in various ways, though not in such a radical mode as that of diverting the course of the urine, but by trying to close in the bladder. All the operations up to a certain point were successful, but there always came a point when all attempts to bring about closure were frustrated by the tendency of the urine to escape from the gap that

must almost of necessity occur when the flaps were brought together. The subsequent symptoms in the author's case were somewhat of a conundrum. With respect to the condition of the bladder, he did not see that any great success had been attained. He had seen a much more contracted surface in many boys after milder measures. The protrusion was probably due in part to hernia of the posterior surface of the bladder due to the pressure of the intestines from behind. It remained to be seen whether as time went by the mucus service would become covered with epithelium. He hoped they would see this case again. He thought many of these special cases might possibly admit of relief being afforded by some such operation as that so successfully performed by the author.

Mr. Stanley Boyd observed that it would be interesting to see what became of this case, because there was still a possibility of stricture. He pointed out, too, that in other cases of transplantation of the ureter, usually into the bowel, the patient had subsequently died of surgical kidney, *i.e.*, acute septic interstitial nephritis. He did not see any reason why this should not take place when the ureter was turned out on to the skin, as a result of some septic dermatitis or inflammation of the ureter excited by some instrument used to collect urine. He, too, wondered why the author, having collected urine from both ureters and found it healthy, had not done the double operation—two kidneys being better than one, no matter how well the one left might functionate.

The President, in reply to the question as to why he removed one kidney, explained that he had been guided by his experience of the difficulty connected with the collection of urine from two sources on the body and partly because he was influenced by the case, which he had briefly referred to, of a man going about with a renal fistula connected, he believed, with a solitary kidney. It was on these grounds that he had decided to perform a preliminary nephrectomy. With reference to the somewhat herniated condition of the bladder, he said it was his intention to bring together the abdominal parietes, but as cicatrisation appeared to be going on he thought before adopting this procedure it would be well to wait for a time. With a considerable experience of the various plastic operations for the relief of this deformity, he thought it would be far easier to approximate flaps and to secure good union at a time when he would not have to contend with the presence of urine in the wound. It was to be hoped that the exposed mucous membrane might take on further cicatricial changes. As to the likelihood of stricture at the mouth of the ureter he pointed out that so far, although it was now four months since the operation, there was not the slightest indication of any narrowing. Four months was, he admitted, a comparatively short time, yet one would have expected to see some indication of narrowing if any were in progress. The flow of urine was uninterrupted, and that was a safeguard against the liability to stricture. He hoped the Society would accept this as a preliminary communication on a subject which was not as yet fully worked out. He would report on this case later on.

## TWO CASES.

By H. D. Rolleston, M.A., M.D. Camb., F.R.C.P. Lond.

### (1) *Spastic Hemiplegia after Whooping Cough.*

Dr. Rolleston showed a girl, aged 13, with right spastic hemiplegia, associated with a varying amount of athetoid movement. The condition came on at 10 months of age during an attack of whooping cough, and was presumably due to a hæmorrhage on to the motor cortex occurring from one of the cerebral veins during a paroxysm of cough.

The face was not affected, and speech was natural. The forearm was extended on the arm due to spasm of the triceps extensor. The wrist was flexed and adducted to the ulnar side. The fingers were continuously flexed into the palm, but occasionally, especially when excited, there was athetosis. The hand could be unravelled but offered very considerable resistance. Movement at the elbow and shoulder was very considerably impaired, and was practically absent at the wrist. The muscles of the right arm and upper part of the chest were hypertrophied and larger than those on the opposite side; this was probably due to the constant spasm. The right lower extremity was spastic, but there was no exaggeration of the knee jerks.

The patient's mental condition was natural, and there was no history of any epileptic attacks.

Dr. Maguire observed that if one knew nothing about the history of this case one would suspect it to be one of functional disorder. Seeing, however, that it had begun at such an early period of life, it could hardly be entirely functional, and there must be some organic lesion behind all. The only lesion that could determine such symptoms would be a hæmorrhage into the cortex of the brain, a rare condition in the young, of which indeed he had only seen one instance. In that case it was quite impossible to doubt what the nature of the lesion was, for there was distinct hemiplegia, followed by contracture. It was not very surprising to find that the symptoms, as in this case, were allied to those shown in other cases of hysteria, and suddenly disappeared. If one examined this patient quietly every muscle could be got to relax for a time and then the contracture recurred, perhaps with renewed intensity. The explanation was probably that in hysteria there was a lack of control over inhibition, and precisely the same thing obtained in the case under consideration, but in the latter it was due to an organic cause; whereas in hysteria it was a functional cause. He added that the prognosis in these cases was far from good, for if watched from the first year of life they showed

hemiplegia, or spastic paralysis, and never got perfect movement of the limb, while in the majority of cases they ultimately developed epilepsy at the age of puberty.

Dr. GUTHRIE thought it was surprising that they did not get these symptoms oftener than they did after whooping cough, hæmorrhages elsewhere being of common occurrence. He was reminded of a case in a child, aged 7, whom he had seen in 1895, who suffered very severely from whooping cough. During a paroxysm she became hemiplegic on the right side with loss of speech, but in the course of a few months the hemiplegia cleared up, and speech returned. Last May, however, while the mother was putting the child to bed she had another attack, and once more became hemiplegic on the left side. She had since recovered somewhat, but the left arm remained paralysed. This was, therefore, an instance of hemiplegia occurring first on one side and then on the other. After the first attack the brain had taken on the functions on the sound side until that side too was destroyed. This time he apprehended the child would remain permanently dumb. It was but seldom that an opportunity occurred of making *post-mortem* examination of these cases, but he himself had never succeeded in finding any trace of hæmorrhage, although hæmorrhage was, doubtless, the cause of the symptoms.

### (2) *Acromegaly.*

Dr. Rolleston showed a woman, aged 26, suffering from acromegaly. For $2\frac{1}{2}$ years the hands and feet had been enlarging, her face had been elongating, the nose had become more prominent, and she had suffered from amenorrhœa. For a month before she came under observation in October, 1896, she had been the subject of severe headache. On admission into the hospital she was a typical, though not advanced, case of the disease, the optic nerves being normal.

Under treatment by thyroid and pituitary gland substance, two 5 grain tabloids of each daily, she entirely lost her headache, and expressed herself as feeling much better, although the skeletal changes were unaltered. This treatment was continued with the same satisfactory result after her discharge from the hospital, so that the loss of headache can hardly be explained as being merely due to rest in bed. A somewhat similar result had been obtained in a more advanced case of the same disease. Since pituitary gland had been found to be unsuccessful in acromegaly, and since there were some superficial resemblances between acromegaly and myœdema, it seemed reasonable to try a combination of pituitary and thyroid extracts. Physiologically the action of these two extracts were opposed.* It was, therefore, possible that acro-

* Oliver and Schäfer, 'Journal of Physiology,' 1895, p. 277.

megaly was the result of a disturbance of a chemico-physiological equilibrium maintained in health by the normal activity of these two glands.*

## CASE OF MULTIPLE SPONTANEOUS FRACTURES.

By Leonard G. Guthrie, M.A., M.D. Oxon.

Dr. Guthrie showed a Jewish child, 2 years of age, suffering from multiple spontaneous fractures. The child had never suckled, but had been brought up on cow's milk and water, the milk being probably of poor quality. Four months previously, discoloured patches "like bruises" were noticed about the thighs, arms, and clavicles. On admission to hospital the child was found to be very badly nourished, extremely sensitive to any manipulation, and there were definite fractures of the shafts of the clavicles, femora, and the right humerus, with considerable deformity. Skiagrams were shown demonstrating the lesions of bone. Several of the fractures had united, but there was still mobility of some. He believed the condition was probably due to scurvy rickets, although there was no positive evidence of the condition, except perhaps the bruises. The child had rapidly improved on a diet of milk and cream, with raw meat-juice and orange-juice.

Mr. J. Morgan said he might have shown a somewhat similar case, the patient being a boy of 7, whom he had seen for the first time last week at the Children's Hospital. The patient exhibited no less than 18 fractures of this kind, and the amount of deformity exceeded anything he had ever seen. The interest of the case to him was not so much the large number of fractures as the general condition of the boy. He had always observed that rickets varied very much in its distribution; and although this boy had suffered considerably from rickets at an early period when these fractures had taken place, the appearance of his face in bed was that of a fine healthy boy, there being no deformity of the head or face. He dissented from the author's view of his case being one of scurvy rickets. He himself had made the drawings of the first few cases described by Dr. Barlow years ago, and he remembered that the changes in scurvy rickets were brought about at the junction of the epiphyses and diaphyses, whereas the deformities in the author's case were distinctly in the diaphyses. He pointed out that any small child with a fracture would exhibit a certain amount of bruising; but the essential lesion in scurvy rickets was the separation of the bone from the growing epiphysis rather than a liability to fracture.

* Rolleston, 'Lancet,' 1896, vol. i, p. 1138.

## FOUR CASES.

By William H. Battle, F.R.C.S. Eng.

### (1) *Early Condition of "Baker's Cyst" of Knee.*

The patient is a married woman, aged 24, who has had slight trouble about her knees for about three years. Two months ago she had pain in the right calf, and on applying at the Royal Free Hospital the condition which is now present was found. There is an effusion in both knee joints, not excessive in amount, distension of both semi-membranosus bursæ, and a fluctuating swelling covering an area the size of a five-shilling piece in the inner head of the right gastrocnemius. When she first applied at the hospital she complained of sudden pain in the calf, and it was very difficult to understand the reason for the small fluctuating area which appeared to be under the deep fascia, until the discovery of the fluid in the bursa above and in the joint suggested the possibility of its being an extension from the former. And when steady pressure was made over it, its contents diminished slowly whilst the bursa became more tense.

### (2) *The Result of Operations for Deformity of the Lower Extremities.*

The patient, a girl, when aged 21, was under my care at the Royal Free Hospital. She was admitted on November 26th, 1895, and left on April 29th, 1896.

The history of the case was as follows:—About five years before she had pains in the right leg, which began to swell, and in 12 months' time she noticed that it was getting out of shape. Two years later she went into hospital, and says that a piece of bone was removed from the right leg, which was afterwards put up in plaster of Paris. The left leg was only slightly affected then. She was under treatment for three months. Plaster splints were worn for three months longer, and two months after taking them off she noticed that the leg was getting bad again and very painful, and in December, 1894, she was obliged to walk with a crutch. On admission her appearance was fairly healthy, but of somewhat stunted growth, but without evidences of C.S. or rickets. (Photographs were shown, demonstrating the condition of the deformity

of the lower extremities.) Speaking generally, the right limb was in a condition of genu vulgam and the left of genu varum.

*Right femur*—Inner condyle abnormally prominent, and extending to lower level than external. *Joint*—Ligaments rather loose. *Tibia*—Much backward displacement of upper end, most marked below epiphysial line, where there are scars of old operation. There is also displacement of the limb outwards below this point.

*Left femur*—Bowed outwards and kept abducted; leg adducted. *Tibia*—Much rotated inwards, with bowing outwards. On flexion the adduction of the limb disappears to some extent, but the rotation still remains. *Joint*—Ligaments loose, but not so markedly so as in the right knee.

When the patient is lying on her back, with the pelvis in a normal position, the legs extended, the femora being placed as nearly in their normal position as possible, the left external malleolus is found more than 3 inches to the right of the middle line of the body. There is slight lumbar curvature to the right. She is able to stand without support, but not very firmly nor for a long time, but cannot walk without a crutch or some other aid.

As there was some movement to be obtained at the site of the old operation, and the patient had several impetiginous sores, no operative treatment was carried out until the right tibia was firm and the sores healed.

On January 10th, 1896, osteotomy of lower end of left femur (MacEwen's method) and upper end of left tibia. Plaster of Paris splints.

On January 28th osteotomy of right femur, tibia, and fibula (through separate incisions). Osteotomy of the lower end of the left tibia was done at the same operation, to connect the inward rotation of the lower part of this bone.

On February 6th fresh splints applied and position further improved. Oily matter escaped on section of all the bones, which were unusually soft.

On March 6th the splints were removed, union being firm, and the limbs massaged. Apparatus supporting the legs was applied, and she could walk when she left the hospital. When shown at the Society she could walk well and had given up the use of all apparatus.

(3) *Result of Treatment in a case of Compound Comminuted Fracture of the Patella.*

C. M., aged 34, was admitted to St. Thomas's Hospital on September 21st, 1896, and left on November 18th. Shortly before admission he had fallen a distance of 30 feet from a ladder, alighting with his right knee on the edge of an iron-bound cask. There was an oblique wound across the front of the knee, through which a piece of bone was projecting, and a finger inserted could feel numerous other fragments. He refused treatment for some time, but ultimately consented. Some fragments were removed, and a wire applied to draw together those attached to quadriceps extensor and lig. patellæ. With the exception of limited flexion, all the movements were now perfect, and he had resumed his occupation, which necessitates ladder climbing.

(4) *Amputation of Thumb for large Sarcomatous Growth in a man the subject of Multiple Bony Growths (illustrated).*

The patient from whom this large growth was removed by amputation was a man, aged 52, admitted into St. Thomas's Hospital on September 29th, 1896. He was the subject of bony

growths which had been present as long as he could remember; they had caused, however, no pain or other inconvenience. Two years ago he knocked the left thumb, and since there had been increase in its size and pain; lately the skin had given way in two places, and there had been some fungation at these points with hæmorrhage. The thumb had been converted into a large tumour with fungating growth in the outer aspect. Very tender and

fluctuating in parts, most of the large growth arose from the middle phalanx. There was also a hard growth on the terminal phalanx as well as on the first phalanx. There were symmetrical exostoses at the lower end of each radius, and others on the outer side of the right metacarpo-phalangeal joint (first phalanx) and terminal phalanx of right thumb, also a large one on the inner side of the right ulna in its lower fourth. There were several fibrous swellings on the right foot. His general health was good, and there was no enlargement of glands.

The thumb was amputated on October 1st, 1896. In the following January he began to suffer from (?) chronic bronchitis, and died at the end of March. There was no *post-mortem* examination, and it is possible that the condition was due to secondary growths.

Under the microscope, the growth was a chondroma, there being in places distinct (spindle-celled) sarcomatous change which had had its origin in the cellular tissue between the cartilaginous cell groups.

Mr. Morgan, in respect to the last case, called attention to the interesting nature of the degeneration. It reminded him of a case which he had published a fortnight since in the 'Lancet,' in which a congenital bony tumour in a man degenerated into a rapidly-growing sarcoma at the age of 50. He remarked on the success that had attended the author's treatment of the fractured patella, especially as it was compound. It emphasised what he had long believed—that one could do a great deal with the patella, no matter what injury it might have sustained. He had collected 12 instances in which he had wired the patella, and the conditions met with were often very surprising. In two or three the lower part of the patella had been merely a bag of bony crumbs contained in fascia, and so hopelessly smashed that one almost despaired of union. Nevertheless, in three or four instances he had wired this bag of crumbs to the upper part of the patella, and the success had been just as good as if it had been a simple transverse fracture.

## CASE OF MULTIPLE SUBCUTANEOUS TUMOURS.

By F. C. Wallis, B.A. Camb., F.R.C.S. Eng.

Mr. Wallis showed a man with multiple subcutaneous tumours. The patient had been an in-patient at Charing Cross Hospital in 1894 for lymphadenoma of the glands on the right side of the neck, which had existed for five years. These were all removed, 13 in number, and the majority of them were found to be undergoing calcification. No other glands or swellings were found in

any other part of the body. The patient remained in good health until seven months ago, when he noticed some tumours in the region of the umbilicus, and from that time the tumours have appeared in various places all over his body, and he has been rapidly losing weight. The case was presumably one of multiple sarcomata. The interesting features were that the original disease should have remained so long quiescent, and that after a period of two and a half years from the date of the removal of the originally affected glands, this general dissemination should so suddenly appear not only in the glands, but also in various places along lymphatic tracks.

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